


DA DISTRIBUTION AGE

A CHILTON  PUBLICATION

AUGUST 1956



PLAY IT **SAFE**..

Choose Allis-Chalmers Fork Trucks for Both Profit and Protection!

One reason Allis-Chalmers fork trucks, like this 6,000-lb diesel model, are so safe is that driving them is almost second-nature right from the beginning. They start, steer, shift and drive like an automobile.



Users say that Allis-Chalmers fork lift trucks are the most efficient and economical they ever used — *also the safest.*

It's no accident that they give you the best possible protection for your men, equipment and material handled. From strong, automotive-type main frame to top of double-channel mast, every detail has been engineered with an eye to safety. There's a wide, low mounting step on both sides leading to a roomy floorboard that is completely clear of levers. Brakes are more than ample in size and are self-energizing both forward and backward.

Center of gravity is low. Fuel tank is placed far from the engine compartment. Because they drive like an automobile, the operator makes the right move by reflex in a tight spot.

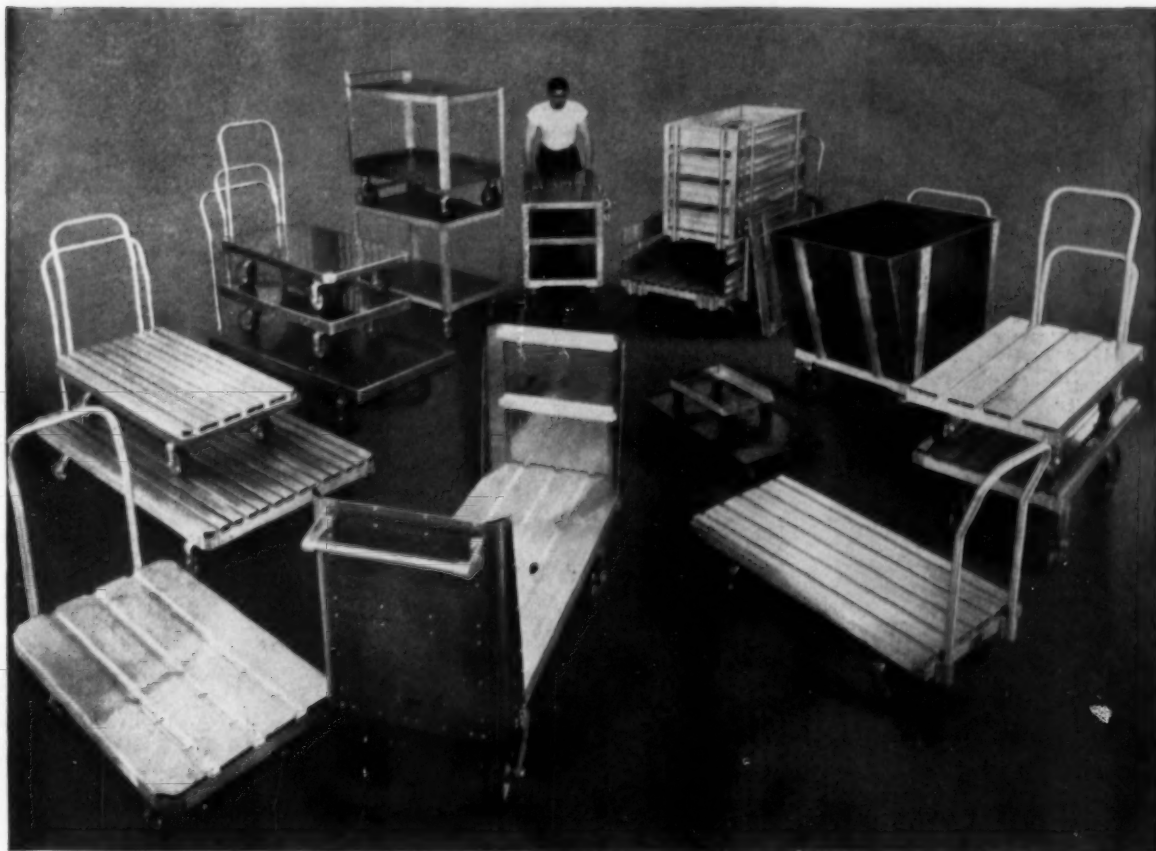
You can measure the profits an Allis-Chalmers fork truck can make — and that's important. But safety is so important, it *can't* be measured. It is a big additional reason why you should specify Allis-Chalmers. For complete information, write for free catalog or obtain a copy from your Allis-Chalmers Materials Handling Dealer.



ALLIS-CHALMERS, BUDA DIVISION, MILWAUKEE 1, WISCONSIN



ALLIS-CHALMERS



Magcoa/Tobey lightweight aluminum trucks —

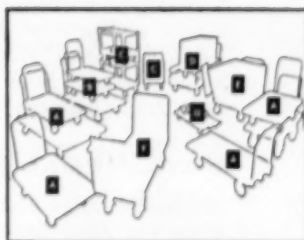
Made for special jobs... sold as standard equipment!

Magcoa/Tobey aluminum trucks solve all kinds of problems. Because we have a wide range of styles and sizes, chances are there is a *standard* truck to solve your *special* problem.

Most important of all, Magcoa/Tobey trucks save you money—are the most efficient and economical to operate. Lightweight aluminum construction completely eliminates cumbersome dead weight. Magcoa/Tobey trucks start, stop, and steer quicker and easier.

Revolutionary swivel casters provide free-swivel action under full load; increase efficiency, assure maximum maneuverability. Full range of caster sizes and wheels-and-tire types for every load and floor condition.

In short, Magcoa/Tobey trucks cut those truck costs which mean the greatest savings to you: the cost of *moving* the truck!



A. Flat bed trucks—extrusion decks—round or square corners—dozens of sizes. Tops in shock-absorbing flexibility.

B. Flat bed trucks—flush decks. The ultimate in lightness and freedom from crevices.

C. Multiple deck trucks—Masonite or sheet aluminum decks—many varieties and sizes.

D. Removable sides and ends, couplers, hitches and other standard accessories available on most styles.

E. Bin trucks and other enclosed designs as specified.

F. Fixed end trucks—for baggage handling and similar jobs.

G. Dollies and other specials.

There is something new in trucks. Get the full facts from the new Magcoa/Tobey Data File. It shows the dozens of types and hundreds of sizes available to help solve your special problem. No obligation. Use the handy coupon.

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East Chicago 3 Indiana

Representatives in Principal Cities

☐ Please send Magcoa/Tobey Data File

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Company _____

Address _____

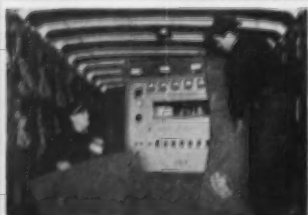
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Circle No. 2 on Card, Facing Page 69, for more information



Careful, on-time household moves—a North American specialty!



Sensitive, high-value products can travel without dismantling, via NAVL.



NAVL (Creston Division) is best way to ship uncrated new furnishings.



Move exhibit displays safest and quickest in NAVL padded vans.



By sea or air "anywhere"—that's North American World-Wide Service!

EXCELLENT OPPORTUNITY FOR LOCAL MOVERS

A few choice areas open for firms that can qualify as North American Agents. Many sources of extra business. Complete sales help. Write for information.



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New Furnishings get the same gentle handling as **NORTH AMERICAN** **"Wife-Approved" Moves!**

You save time and money every time you ship new *uncrated* furniture—as well as furnishings, fixtures or equipment—to dealer or user via North American-Creston Padded Van.

This superior handling gives your products all the safety and prompt delivery of a North American "Wife-Approved" household goods move. Creston know-how plus NAVL resources guarantee prompt, economical transportation, always!

NAVL "FOLLOW-THRU" SERVICE

North American has agents in more cities than any other van line—hence can "follow-thru" on shipments anywhere. NAVL-Creston rates are competitive. Ask your local NAVL agent for details or send for name of nearest agent.



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INDUSTRIAL MOVING SERVICES: Quick, safe handling of Company-Paid Personnel Moves; Exhibit Displays; High-Value Products; New Furniture; Office Equipment. See your NAVL Agent.

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BUSINESS

ROBERT E. MCKENNA, Publisher
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ADVERTISING STAFF

EASTERN STATES
H. S. Webster, Jr.
100 E. 42nd St., New York 17, N. Y.
Telephone: Oxford 7-3400

CENTRAL STATES
Donald H. Walz
859 Leader Bldg., Cleveland 14, Ohio
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AUGUST, 1956

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Airfreight costs less than you think. A typical 100 lb. airfreight shipment costs only \$7.50 from New York to Chicago—\$18.80 from Chicago to San Francisco.

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—carries more cargo than any other airline in the world

TURN

...to America's Most Modern Port

PORT OF
LONG BEACH



SHIPPERS and TRAFFIC MEN:

You should be receiving the Long Beach Harbor Department's quarterly magazine, HARBOR HIGHLIGHTS. We'll be happy to put you on the mailing list — just send us your name, company name and address.

Start shipping through the Port of Long Beach, California — the only port in the world with all these advantages:

- 1 Deep water channels with wide turning basins.
- 2 Steel and concrete clear-span transit sheds.
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- 6 Railway trackage connecting with major rail lines.
- 7 Access to new Southern California freeway system and other Western markets via highways.
- 8 Shore based radar installation for all-weather ship handling.
- 9 Large, open, paved storage areas.
- 10 Wide apron wharves.



THE PORT OF LONG BEACH

P.O. Box 570 • 1333 El Embarcadero • Long Beach 1, California

CLARK ELECTRICS AT ALFORD REFRIGERATED WAREHOUSE

...are key to efficiency

A Texan named Fred Alford operates what might be called, "the biggest ice box this side of the polar ice cap." It's the world's largest refrigerated warehouse. Key to the efficient operation of this bonanza is a fleet of Clark Electric fork trucks. There are some important reasons why.

Electric trucks move material at the lowest cost per ton mile — and with Clark Electrics, you get the electric truck with the power saving dual field motor that provides more ton-miles per battery charge.

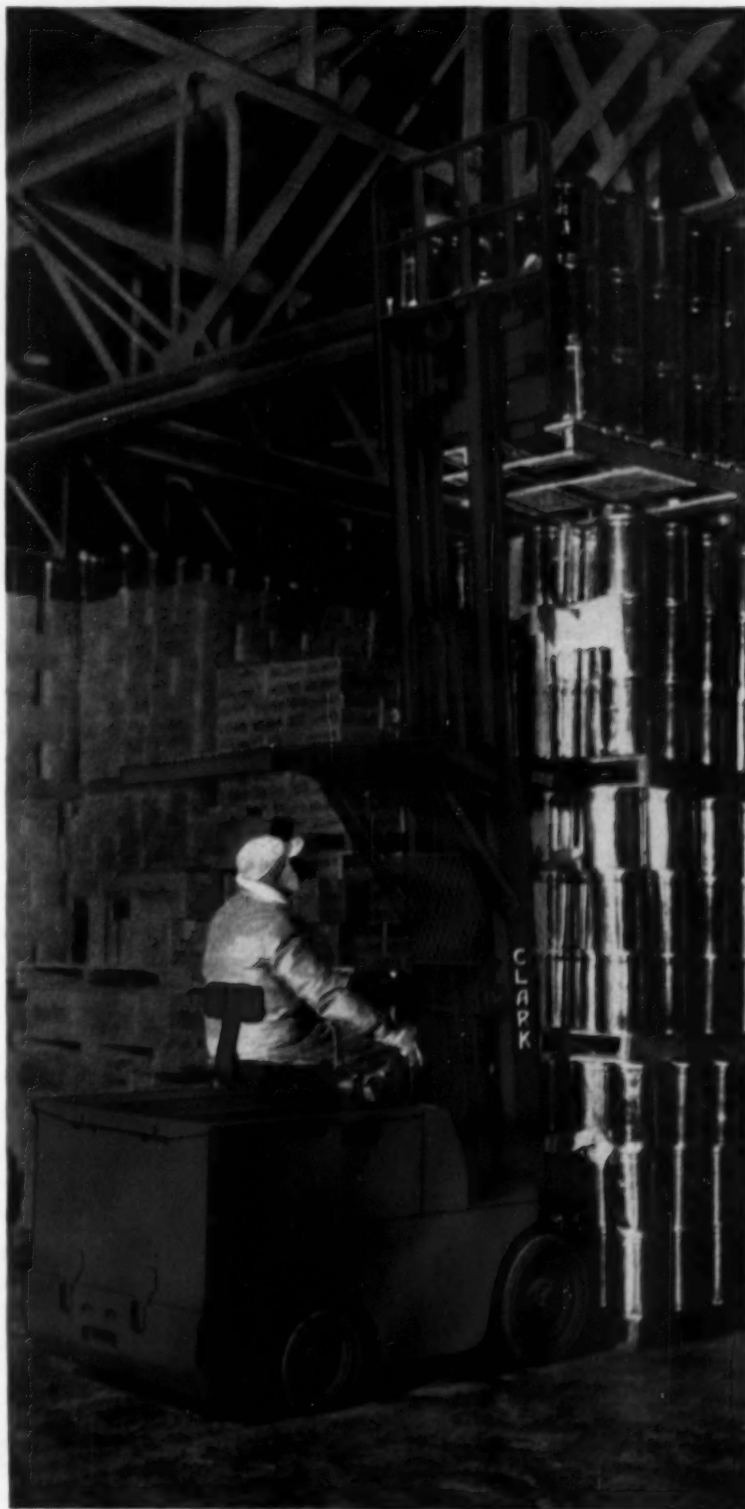
But it takes more than features. How about 3 years from now, or 5 years, or 10? That's when you depend on service — fast, local service.

And that's where your local Clark dealer comes in. He offers prompt mobile service for emergencies, the largest supply of service parts in the industry — genuine Clark parts that are warranted and guaranteed for quality. And he provides a completely equipped shop for rebuilding, a fleet of rental trucks to help you over peak work loads. Fact is, he offers a complete service package. Look in the Yellow Pages under "Trucks, Industrial" for the Clark dealer nearest you.

Industrial Truck Division
CLARK EQUIPMENT COMPANY
Battle Creek 11, Michigan

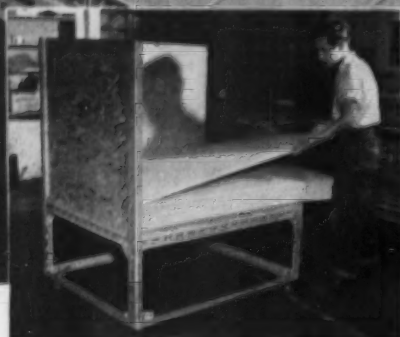
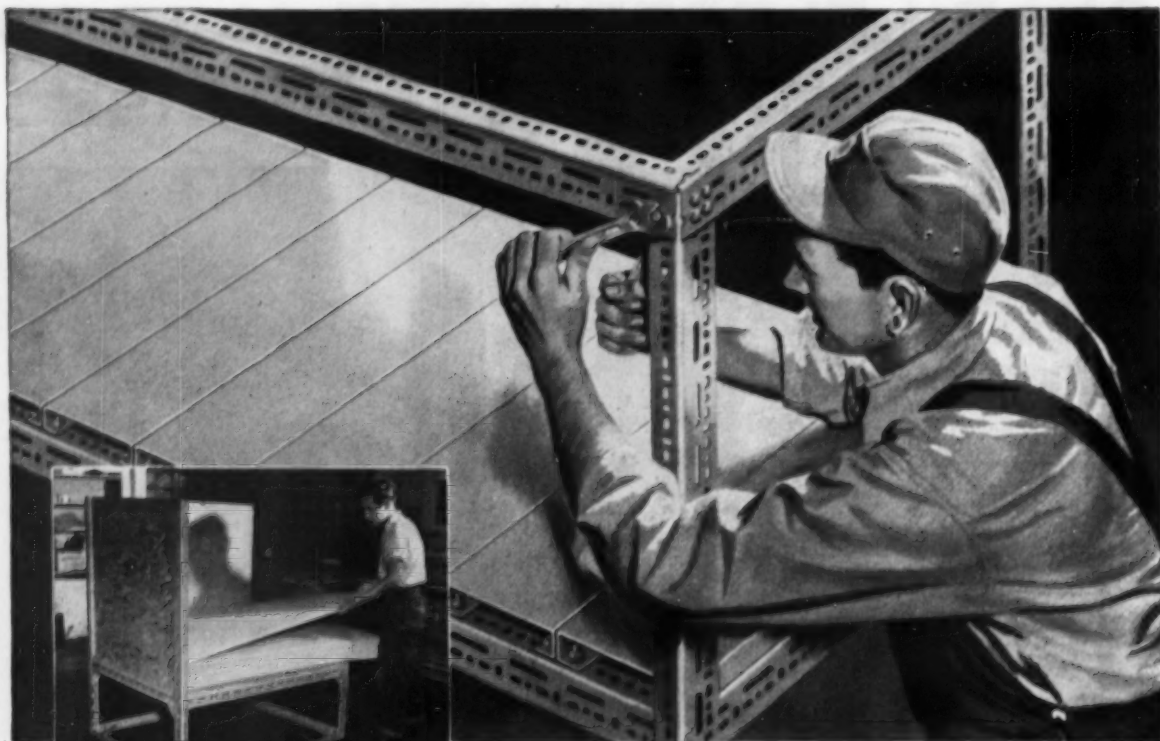


A BETTER BUY WITH LOCAL SUPPLY—*Genuine Clark Parts*



AUGUST, 1956

Circle No. 4 on Card, Facing Page 69, for more information



STACKING CART



PICK RACK



STORAGE BINS

Just cut and bolt! . . .

Build anything you want with DEXION Slotted Angle

Almost anyone can assemble DEXION. All you need is a DEXION cutter and wrench to transform this precision-made, cold rolled, galvanized steel angle into practical, useful, economical equipment used almost anywhere in your plant, warehouse, store or office.

Measuring is easy. And one down stroke of the DEXION cutter leaves a clean, square cut. There are no tricky parts to cope with, either. Spacing of slots and holes is engineered to make it easy for you to produce an infinite variety of structures.

DEXION Slotted Angle is a packaged product, ten pieces to the package, in 10 or 12 foot lengths. Includes nuts and bolts. There are two sizes: 3" x 1½" x .104" and 2¼" x 1½" x .080".

Use DEXION panels for shelving or tables. They will support heavy weights and will bolt easily to any frame. DEXION casters make any frame movable.

FREE DEXION Idea Book—The New DEXION idea book will show you scores of actual examples of DEXION in use. Simply write DEPT. 1-L, DEXION Division, Acme Steel Company, 2840 Archer Avenue, Chicago 8, Illinois for the free booklet and the name of your nearest DEXION office or distributor.

DEXION SLOTTED ANGLE



Circle No. 5 on Card, Facing Page 69, for more information

On the Line—



Ready for a Fire?

A few years ago, we became very curious about fire insurance rates on warehoused and in-transit commodities. As we probed, we found that we knew very little about the subject.

We've learned a lot since: Mostly that there are so many variables in determining rates that it is impossible, even for an insurance broker, to quote them until after an inspection by a fire protection engineer.

Then we learned that most companies are paying an additional premium for such things as insufficient or inadequate first-aid fire extinguishing equipment, unapproved window glass, excessively high piling, too narrow aisles, poor housekeeping, and so on.

We also learned that rates may be reviewed whenever the insured wants them to, and that they will be reduced as soon as the authority having jurisdiction—the fire inspection bureau—inspects and approves corrected conditions.

We talked to many terminal and warehouse owners, operators and managers about their fire insurance and learned that most, especially private warehousemen, are only vaguely familiar with the subject; and that, like most people, they seldom read the fine print.

Consequently, as a service to DA readers—and about 99 per cent can benefit—we plan to get down to fundamentals. We will magnify the fine print and explain it in lay language.

We intend to be objective about the material we present. We'll skip the theory and concentrate on data of immediate usefulness. Properly applied, the data should show immediate bene-

fits—such as saving your company hundreds or thousands of dollars annually on insurance premiums.

Starting in this issue, we've plunged headlong into the general aspects of warehouse fires—leading with an article by Warren J. Baker, the best man we know to speak authoritatively on the subject. Not only does he have a broad understanding and broad experience, but he heads the General Storage Committee of the National Fire Protection Association.

We had the privilege of examining data which his committee prepared and we read many reports. What impressed us most was that the safest place to store goods is a public warehouse.

There are volumes of NFPA data that could help all who have anything to do with storage—public or private. If only more of the key people had this information available, we thought, many bad fires could be averted.

When we voiced this thought, Mr. Baker pondered a while then said he would try to arrange with the NFPA to have a copy of the new safety standards mailed to any interested reader. Normally, a charge is made for this booklet but requests for a single copy addressed to Mr. Baker, care of DA, will be sent free.

On behalf of our readers, we thank Mr. Baker and the NFPA for this kind offer. We are grateful, too, for the other data that will be made available to DA readers in the near future. They certainly will have the means of protecting the jobs, stocks, buildings, money and lives.

Being ready solves half of any problem.

A.W. Greene
EDITOR

Yakkety Yak

Many agree that being ready solves half of any problem. They're always prepared. Like the man who carries matches and a cigarette lighter, or the one who wears suspenders and a belt.

IN CASE: But the one who tickles us most is the truck driver who takes a sandwich home every night

—in case his wife decides to go on a reducing diet that afternoon.

. . . The salesman who fills his other fountain pen with bourbon—in case he makes a sale, he can celebrate.

. . . The old boy who carries an extra set of sharply pointed dentures—in case he gets a tough steak for lunch.

OTHER CASES: Then there are the annoying characters:

. . . The taxi driver who carries no change—in case all you have is paper money when the meter reads \$1.15.

. . . The bellhop who keeps his palm open after you hand him a half dollar—in case you're embarrassed enough to hand him another.



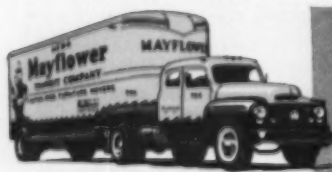
Old Settlers for New Homes

WHEN YOU MOVE LONG-DISTANCE THE MAYFLOWER WAY

► By "old" we mean experienced. And by "settlers" we mean helpful, willing, competent moving men who are anxious to help the families you move get comfortably settled in their new homes. They assemble all lamps, beds, and other pieces which have been dismantled for moving. They arrange all the furniture as directed. They'll do the unpacking if that service is part of the order. In short, they'll do everything possible to make the new home immediately livable. This saves time, trouble, and money for the people you move, your company, and yourself. Let Mayflower do it for you.

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Mayflower Service is available through selected warehouse agents throughout the United States and Canada. Your local Mayflower agent is listed under Moving in the classified section of your telephone directory.



AERO
Mayflower
NATION-WIDE
FURNITURE MOVERS

America's Finest Long-Distance Moving Service

LETTERS

TO THE EDITOR

In-Transit Storage

To The Editor:

It is our intention to have introduced at the next session of the New Mexico Legislature legislation which would exempt storage-in-transit stocks in public warehouses from property tax.

Could you advise us if there are any other states which have similar laws, and what these states are.

George H. Buerger
Benton Van & Storage
Albuquerque, N. M.

If you will get a copy of "The Corporation Journal" for February-March, 1954 you will find quite an article on this subject. Since the publication of this article the following states have enacted legislation exempting property stored in-transit from the personal property tax:

Massachusetts, Chapter 459 of the Acts of 1954;

Indiana, in March 1955 (Indiana House Bill No. 66 Sec. 1, Par 12);

Idaho, in March 1955 (H.B. No. 72, amending Sec. 63-1201 of the Idaho Code);

Oklahoma, in May 1955 (H.B. No. 580 amending Sec. 15.6 of Title 68, Oklahoma Statutes 1951);

Ohio, (Amended Sec. 5701.18 of the Revised Code of Ohio);

Michigan, in 1956 (House Bill 390).

—John H. Frederick, DA Transportation Consultant.

California Warehousing

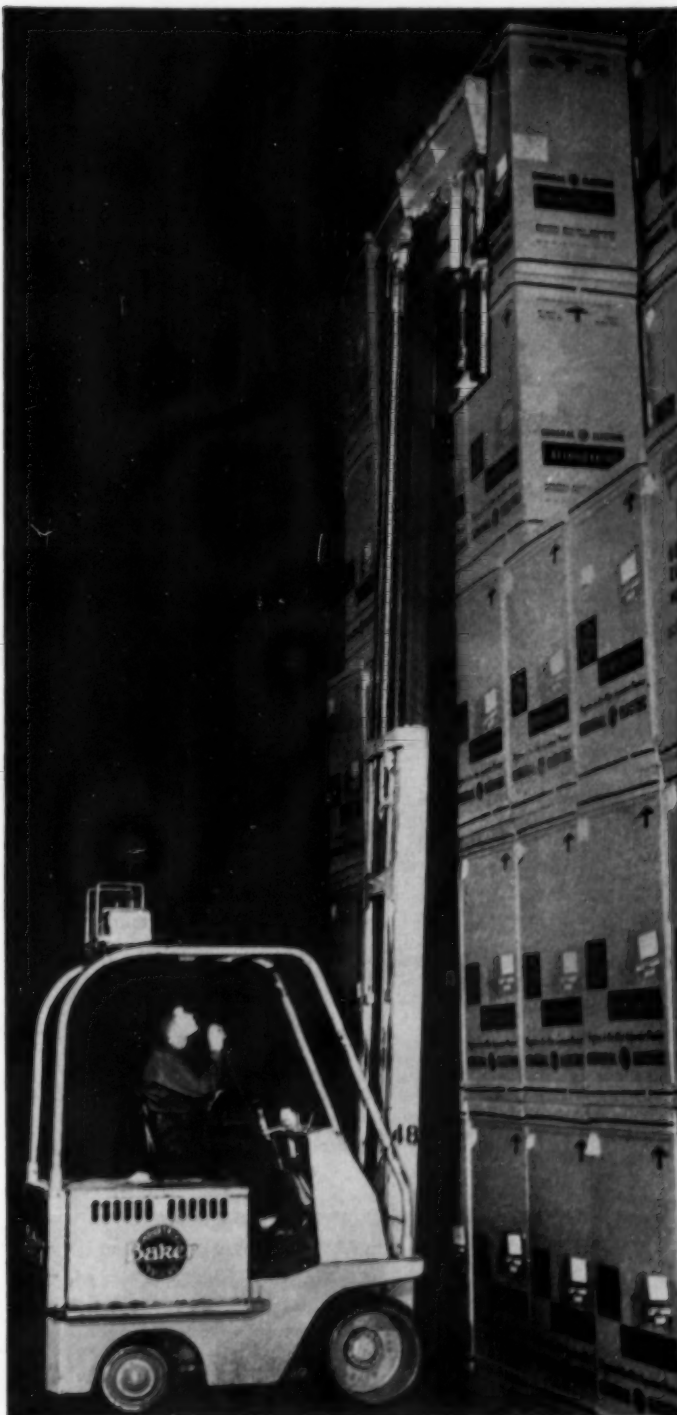
To The Editor:

Can you please give me information as to how the California system of warehousing is done. It is my understanding that it is done on a half month charge.

Seymour C. Kaplan
Brooklyn 11, N. Y.

The customary practice is to make a charge of at least one month's storage no matter whether goods remain in a warehouse for less time. It may be that some warehouses vary this practice, and some in California may well do this. The way to be on the safe side, however, is to select the city in which you want to do storage and then request copies of their tariffs from the warehouses there. Most warehouses have printed tariffs, particularly where they come under state regulation, as is the case in California. The chamber of commerce in any town is another source of information in case you do not care to approach the warehouses. —John H. Frederick, DA Transportation Consultant.

DISTRIBUTION AGE



The same trucks that do the stacking also transport appliances from end of assembly line to storage, and from storage to loading docks. Two-way radio dispatch system expedites movement.

13

BAKER TRUCKS

give

General Electric Appliance Park "floor-to-ceiling" utilization of warehouse space!

Every cubic foot of storage space in this mammoth appliance warehouse is utilized by compact stacking. Baker Trucks, equipped with a special lift attachment that handles cartons or crates without forks, help do the job.

General Electric has a fleet of 13 such trucks at this installation and is adding 5 more. This new concept in appliance handling completely eliminates the use of pallets—which would have meant an additional investment 8 or 9 times the cost of the trucks. The absence of forks and pallets makes possible stacking one tier higher and reduces aisle space required, thus increasing storage capacity more than 25%.

The trucks have a total lift of 242 inches. Appliances are handled 4 per load for the bottom 2 tiers, and 2 per load for upper tiers. Gravity sliding back-rest aligns loads perfectly with tiers below and protects them from impact damage. Side-shifter butts loads snugly against adjacent stack for lateral alignment.

A Baker handling engineer can help you devise similar cost-saving methods in your plant or warehouse. Call your nearest Baker representative or write us direct.

Baker

handling equipment

THE BAKER-RAULANG COMPANY

1216 WEST 80th STREET • CLEVELAND 2, OHIO

A subsidiary of Otis Elevator Company

6E-6

"Give us all the advantages of your standardization... in buildings that meet all the requirements of our distribution operation." And Luria did!

WHY OMAR, INC. CONTINUES TO BUILD WITH LURIA...31 BUILDINGS IN SIX YEARS!



\$10,000,000 Expansion for aggressive midwest baking concern includes 31 Luria Steel Frame Buildings of flat roof type.



Operations Sections are efficient, pleasant working spaces incorporating general offices, managers offices, meeting and utility rooms.



Internal Loading. All units contain internal garaging facilities and underground gasoline storage.



Standard Design of all 31 buildings for Omar, Inc., America's fastest growing bakers, includes handsome buff brick walls, built-up roofing, steel sash and doors. Identical floor plans make every Omar branch familiar to all route men.

There is a standardized solution to your building problem—and Luria has it! Today, in the distribution field, Luria Buildings are as well-known for their ability to *adapt* to individual requirements as for their standardized economies.

And Luria structures are built for *permanence*—engineered to surpass the most stringent building code requirements. You'll find more and more important companies in your field ordering—and re-ordering—Luria Buildings. Contact your nearest Luria representative; *it pays!*

LURIA ENGINEERING Company

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District Offices: ATLANTA, PHILADELPHIA, BOSTON, CHICAGO, WASHINGTON, D. C.



Circle No. 7 on Card, Facing Page 69, for more information

Do railroads really want passenger business?



EXECUTIVE SUITE ON WHEELS. Typical of the many no-extra-fare conveniences found on today's "crack" trains is Wabash Railroad's plush "Blue Bird Room." Here, as many as nine passengers may conduct business meetings, play cards or relax in privacy.



*A. K. Atkinson, President,
Wabash Railroad, says:*

"The answer to that question is taking shape on the rails right now . . . as the Wabash and other progressive railroads move forward in their effort to demonstrate that rail travel can be made more appealing to the public . . . more profit-

able as a business in spite of the difficulties imposed by governmental subsidies for competitors, and one-sided taxing policies.

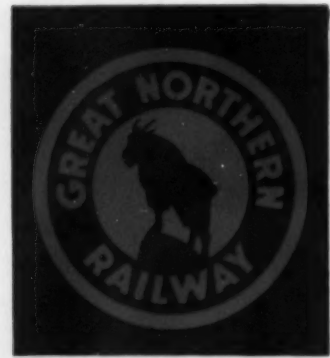
"It's true that some passenger trains are inherently unprofitable. As a matter of sound business practice they

would long since have been abandoned had the public and certain regulatory bodies permitted. Many other passenger trains are presently or potentially profitable, and here intense efforts are being made to attract the volume upon which passenger-train progress depends . . . to make passenger travel even more comfortable, more appealing, more pleasurable.

"Today on the Wabash, for instance, observation domes, decorator-styled cars, special family rates, convenient suburban stations, appealing dining-car meals, highly courteous service and a smooth-as-glass roadbed let the traveler know that he is important.

"Because we are always looking ahead . . . and working ahead, you can be sure that today's passenger advancements give only a hint of what's in store for tomorrow's passenger who travels on the Wabash . . . where passenger business is welcomed and aggressively sought."





the GREAT NORTHERN chose

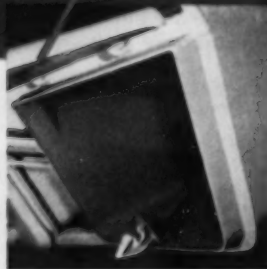
Heavy cross ridge brace combines with side sheets and posts for stability and prevention of side bulging. Rounded and tapered construction prevents material retention, combats corrosion and precludes snagging by clam shells.



The Standardized 70-ton PS-3 Open Top Hopper. Of 2750 cu. ft. capacity and welded construction, it meets or exceeds all AAR requirements. External side posts are continuously automatic arc welded to side sheets for strength, smooth interior and resistance to corrosion.



Vulnerable spots in ordinary hoppers, corners in PS-3s are made fracture-proof by inside corner bands plus corner caps.



Hopper chutes and doors are designed to withstand in-service abuse. Properly located and sloped for fast unloading into under-track conveyors, chutes are closed by positive-locking, easily-operated, precise-fitting doors.



Side posts are welded to top chord bulb angle, and are tapered at bottom to prevent accidental insertion of hooks.

PS-3

standardized hopper cars



Gussets welded across bottom corner angles provide extra reinforcement against the distorting effects of pushing.



Reinforcement of body bolster bottom flange provides additional anchor to center sill while further securing diagonal braces.



When the Great Northern decided to add 300 high capacity, heavy-duty hopper cars to its rolling stock fleet, the company bought the PS-3 70-ton Hopper Car.

The PS-3 Open Top Hopper has taken its place along side the famous PS-1 Box Car, the popular PS-2

Covered Hopper, and the versatile new PS-4 all-purpose Flat Car in the Pullman-Standard standardized line.

Like all Pullman-Standard standardized freight cars, the PS-3 has been completely engineered and tested to best fill the Open Top Hopper needs of the railroad industry. Testing includes complete pre-building laboratory examination as well as thorough in-service test follow-through by trained field service engineers. Produced by specialized precision tools on long production runs, PS-3 fabrication excellence is assured by rigid quality control standards. The result of standardization is a ruggedly dependable car built to withstand all the hard usage to which hoppers are traditionally put. And a car that requires minimum maintenance while giving maximum dependability and performance. These benefits, plus lower first cost are built into every PS standardized freight car.

The PS-3's standardization includes sufficient flexibility to allow its production in two sizes: 50-ton 2143 cu. ft., and 70-ton, 2750 cu. ft.

The Great Northern is one of nine users whose orders for the PS-3 in recent years have totaled over 6800 units.

Among the physical characteristics users appreciate in the standardized PS-3 are its strength and durability through mutually supporting components and heavier sheets, its fast unloading abilities, its self-cleaning interior with no material retaining ledges or structural pockets and its long life which experience proves doubles the time between rebuilding.

The 70-ton PS-3 Open Hopper Car is expected to make an important contribution to the Great Northern's continuing efforts to maintain its enviable position at the forefront of American transportation.

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Ship sure

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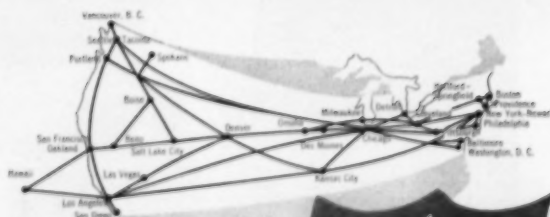
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SEATTLE to LOS ANGELES	\$9.80
PHILADELPHIA to PORTLAND	\$24.15
SAN FRANCISCO to BOSTON	\$27.00

*These are the rates for many commodities. They are often lower for larger shipments. Rates shown are for information only, are subject to change, and do not include the 3% federal tax on domestic shipments.



For service or information, call the nearest United Air Lines Representative. Write for free Air Freight booklet, Cargo Sales Division, Dept. D-8, United Air Lines, 5959 S. Cicero Ave., Chicago 38.

Chuting The NEWS



The Cover

Last year 41 major warehouse fires occurred with total losses exceeding \$19 million. Of this group, 92 per cent were private warehouses. The cover scene shows a private warehouse fire. In this issue several articles review the causes, damages, and means of protecting warehouse stock against such destruction. Future articles in this series will show practices that will provide lower insurance rates, as well as improved methods of protecting your building and contents

NFWA Fifth Annual Operating Conferences To Feature Regional Sessions on New Master Plan

The National Furniture Warehousemen's Association's Fifth Annual Operating Conferences this year have been built around a series of regional meetings on the new "NFWA Master Plan for Profitable Expansion."

The four regional meetings will be divided into two parts. Part I, Outlining the Problems, will consist of discussions on Procedures Under PL

245, Proper Insurance Protection, and Packing and Crating Estimates. Part II, Advancing the Solutions, will cover Economics of Palletization, Controlled Business Expansion, and Raising Performance Standards.

The first of the meetings is scheduled for the Eastern Region, at Saranac Inn, Saranac, N. Y., on Aug. 24. The Southeastern Region meeting will be conducted Sept. 14 at the Balmoral Hotel, Miami Beach, Fla.

Oct. 19 has been set as the date for the West-Central Region meeting, at the Hotel Utah, in Salt Lake City, Utah. The final meeting, for the Southwestern Region, is scheduled for Oct. 23, at the Statler-Hilton Hotel, in Dallas, Tex.

Space applications are being accepted for the 7th National Materials Handling Exposition, scheduled for April 29 to May 3, in Philadelphia's Convention Hall. Inquiries should be directed to Clapp & Poliak, Inc., 341 Madison Ave., New York.

Transportation Review and Outlook Notes Good First Half; Second Half Forecast Optimistic

The nation's transportation system of air, highway, railroad, water, and pipeline reflect confidence for the second half of 1956. Almost every form reported traffic gains in the first part of the year, according to the Chamber of Commerce of the United States.

The mid-year edition of "Transportation Review and Outlook," prepared by the Chamber's Transportation and Communication Department, said that second-half confidence, however, is contingent upon a few questions. These vary from industry to industry with perhaps the biggest unknown centering around the steel industry.

Steel shortages in the first six months interfered with construction of freight cars, pipelines, ocean-going ships, and inland water vessels.

Inland water operators and pipeline companies anticipate another record-breaking year. Great Lakes tonnage figures indicate increased activity. Railroads and motor carriers generally report increases in traffic and revenues for the first half.

The shipbuilding industry, for the first time since Korea, expects an increased workload. The effect of new lightweight trains and improved services, being introduced by the railroads, will not be apparent for several months.

Transportation executives, for the most part, are pleased with their operations for the first half of the year. Many are optimistic, but compared with last year more of them were inclined to hedge on predictions for the rest of 1956 than was true a year ago.

MHI Meetings Scheduled

The Fall meeting of The Material Handling Institute, Inc., will be held in Atlantic City, N. J., at the Traymore Hotel, Oct. 10-11. The MHI Board of Directors will meet Oct. 10, and the general membership meeting is scheduled for the following day. The Annual Meeting of The MHI is scheduled for Dec. 10-11 at the Biltmore Hotel, in New York, according to a Board of Directors announcement.

(Please Turn Page)

Chuting the News . . .

(Continued from Preceding Page)

National Wooden Pallet Manufacturers Meet Adopt Code of Ethics, Predict Record Year

The 10th Annual Meeting of the National Wooden Pallet Manufacturers Association was conducted last month in Williamsburg, Va.

Secretary-Manager William H. Sardo, Jr., reported that the wooden pallet industry had another record production quarter in the first three months of 1956, but that the second quarter of the current year had been spotty.

Some manufacturers continue to record new sales records, while others have experienced some very slow periods of production. Sardo stated that he believed that these latter members were obtaining a portion of their sales from those segments of the American economy that have suffered set-backs in recent weeks.

Sardo expects production of the wooden pallet industry to remain much as it is at present until September 1, when volume will

regain its upward spiral, establish a new last quarter record, and possibly record a new annual mark.

A progress report on NWPMA's 1956 expanded Trade Promotion Program was given. Publication of a pamphlet on the Care and Maintenance of Wooden Pallets, participation in two national trade shows—in Los Angeles in July, and in St. Louis in October—increased public relations, and initiation of plans to capture a new multi-million dollar market for pallet products, will feature the Trade Promotion Program during the last half of 1956.

NWPMA adopted and approved a Code of Ethics for members, which will be distributed shortly. It also voted to continue the study of the possibility of commencing a research and development program in early 1957.

—DA—

SIPMHE Short Course and Exposition Oct. 22-25

Stephen W. Vasquez, dean of the School of Commerce and Finance of St. Louis University, has been named coordinator of the annual Technical Short Course that will be conducted by the University for the Society of Industrial Packaging and Materials Handling Engineers in St. Louis Oct. 22-25.

The Short Course will be held in St. Louis' Kiel Auditorium, in conjunction with the annual Protective Packaging and Materials Handling Competition and the Industrial Packaging and Materials Handling Exposition, both also sponsored by SIPMHE, in the same building.

The Short Course will stress costs analysis, methods, and human relations in production and management. It will provide a curriculum of lectures and demonstrations.

Packaging Double Header In Cleveland Next Month

Packaging industry representatives and manufacturers of packaging machinery and materials will meet in Cleveland the week of Sept. 10 for two important packaging industry events—the Packaging Machinery & Materials Exposition of 1956, sponsored by The Packaging Machinery Manufacturers' Institute, and the 18th Annual Forum of the Packaging Institute.

The Packaging Institute's 18th Annual Forum will be held September 10-12 around the theme, "Dollars and Sense of Protective Packaging." The Forum will emphasize basic approaches to packaging.

A total of 126 new pieces of packaging machinery will be unveiled at The Packaging Machinery & Materials Exposition to be held in the Cleveland Public Auditorium, September 11-14.

—DA—

Handling Education



Mr. Elton F. Reid, Jr., (left) president of the Houston Chapter, American Material Handling Society, presents a check of \$250 to Dr. Howard F. McGaw (right) Director of Libraries, University of Houston. The check is to be used to purchase Material Handling books for the library course. Dr. J. T. Elrod, chairman, Industrial Engineering Dept. is shown center

DA Materials Handling Expert Joins Consulting Firm

D. O. Haynes, DA materials handling consultant, has joined Mead Carney & Co., Inc., management consultants, as a regular staff member. Haynes previously had served as a consultant to Mead Carney, a New York firm.



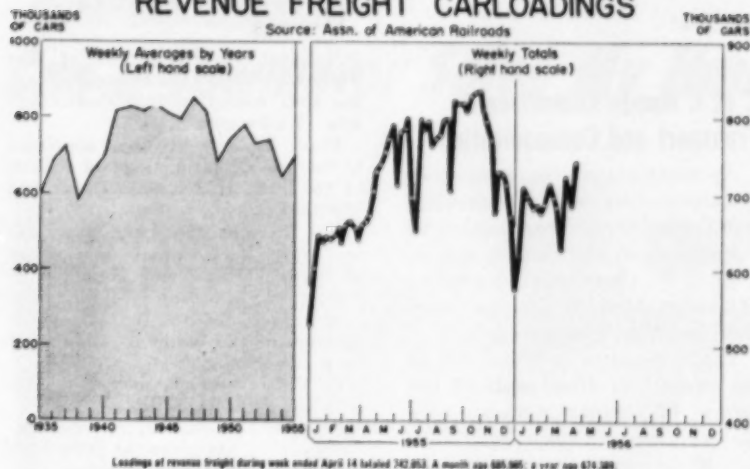
He is a pioneer in the field of industrial engineering, having invented, with his brother, the Haynes Mani System of wage incentives. This was one of the first applications for purposes of measuring manpower productivity.

During the past few years he has concentrated on problems of materials handling. He is an inventor of materials handling equipment, and has two books on the subject in the process of being published by Chilton Co., in cooperation with DA.

—DA—

Five additional material handling equipment manufacturers have joined The Material Handling Institute, Inc. They are Barrett-Cravens Co., Anchor Coupling Co., Inc., Republic Steel Corp., Continental Motors Corp., and Truck-Man Div. of the Knickerbocker Co.

REVENUE FREIGHT CARLOADINGS



Club Briefs

Dr. Wesley Brock, Packaging Engineer, Pacific Car & Foundry Co., spoke on "Some Use of Graphs in Packaging" at the final meeting of the Seattle Chapter, SIPME. Sid B. Peretti, Pacific Car & Foundry Co., was elected president.

New officers of The Traffic Club of Chicago are: President, Paul J. Bond, Pure Oil Co.; first vice-president, C. H. Groninger, B & O Railroad; second vice-president, Walter N. Saaby, Victor Chemical Works; third vice-president, C. M. Gautwick, Northern Pacific Ry. Re-elected secretary and treasurer respectively were: Eugene Landis, International Minerals & Chemical Co., and R. P. DeGroote, Luckenbach Steamship Co.

Raymond W. Traynor, of the Cleveland & Chicago Motor Express Co., was installed as president of the Chicago Transportation Club at its annual dinner.

The annual Milwaukee Traffic Club dinner will be held at the Milwaukee Auditorium on Sept. 19. The speaker will be Dean Clarence E. Manion, former dean of the Law School at Notre Dame University.

The Women's Traffic Club of New York, Inc., installed new officers at its recent 25th Anniversary Dinner. Miss Dorothy Shea of American Tobacco Co. is president.

The Traffic Club of Detroit held its second annual commencement exercises for students graduating from its Club-sponsored two-year night school in traffic and transportation on June 28. Thirty-seven students and their wives, and officers and governors of the club heard an address by David E. Smucker, president of Detroit, Toledo & Ironton Railroad.

New officers of the Houston Traffic Club are: A. W. Huffman, president; Joseph Spear, first vice-president; M. W. Matthews, second vice-president; John M. Brock, secretary; Joseph I. Kennedy, treasurer.

Transportation Clubs of Decatur, Ill., and Springfield, Ill., conducted a combined Spring outing June 12 at the Oakcrest Country Club of Springfield.

Pacific Traffic Association devoted its last meeting to a discussion on air lines, freight forwarders, and foreign and domestic customs house brokers.

The New York Railroad Club, Inc., for the eighth successive year, is conducting a Railroad Essay Contest. Essays are to be written on railroad subjects suggested by the club, or on subject of the contestant's own choice. Closing date is Oct. 1, 1956.

Thomas F. Horan, president of Horan Transportation Co., has been re-elected president of the Harbor Carriers of the Port of New York.

Curry to Assume New Post

The Executive Committee of ATA has enlisted Neil J. Curry, chairman of the Board, to continue direction of the industry's opposition to the Weeks' Report with the title chairman protem of the Executive Committee. The post is newly created and will be assumed by Curry in October when he retires as chairman of the Board.

National Truck Leasing System has scheduled its 12th Annual Meeting for Sept. 10-13 at the Congress Hotel, Chicago.

Twenty-Nine Granted Charters in ATA Freight Claim Council

Twenty-nine motor freight claim groups have been granted charters by the National Freight Claim Council of the ATA.

New members of the council are: New England Motor Carrier Freight Claim Conference, North-eastern Motor Carrier Claim Conference, Freight Claim Committee of Southern Motor Carriers Rate Conference, Central Freight Claim Conference, Southwestern Motor Carriers Claim Conference, Western Motor Freight Claim Conference.

Also, Freight Claim Council of the Colorado Motor Carriers Assn., Freight Claim Council of Kentucky Motor Transport Assn., Ohio Freight Claim Council.

Also, Amarillo Motor Carrier Claim Prevention Group, Albuquerque Motor Carriers Claim Prevention Conference, Atlanta Motor Freight Claims Prevention Conference, Central Carolina Motor Freight Claims Assn., Charlotte Motor Freight Claim Assn., Columbia Motor Freight Claim Prevention Group, Dallas Claim Prevention Conference, Durham-Raleigh Motor Carriers Claim Prevention Conference, El Paso Motor Freight Claim Prevention Group, Fort Worth Freight Claim Prevention Group, Greenville Motor Freight Claim Prevention Club, Highway Carriers Claim Prevention Committee of Kansas City, Jacksonville OS&D Assn., Memphis Motor Carriers Claim Prevention Conference, Midwest Motor Carriers Claim Council.

Also, Puget Sound Motor Freight Claim Agents, Richmond Motor Freight Carriers Claim Council, Southern California Motor Freight Claim Group, Twin-City Claim Conference, and Oklahoma City Motor Carriers Claim Prevention Conference.

(Please Turn Page)

Chuting the News . . .

(Continued from Preceding Page)

New Standards Approved for Interstate Highway System

The Commissioner of Public Roads, acting for the Secretary of Commerce, last month approved the new geometric design standards for the National System of Interstate and Defense Highways. These standards were adopted by the states earlier at a meeting of the Committee on Administration of the American Association of State Highway Officials.

The newly approved standards essentially are the same as those used in the study to determine the needs on the Interstate System, upon which the Federal-Aid Highway Act of 1956 is based.

—DA—
In a reclassification of titles, the Frisco Railway has renamed its general freight traffic manager the general manager-sales. Traffic managers and general agents will be called district managers-sales.

Packaging Industry Report Cites Continued Volume

The record rate of activity in the container industry during the last half of 1955 held through the first quarter of 1956. Indications point to a continued heavy volume through the end of the year, according to the Summer, 1956, issue of the "Containers and Packaging Industry Report," released by the Containers and Packaging Division of the Business and Defense Services Administration, U. S. Department of Commerce.

Statistically, container operations of the first quarter of 1956 were slightly less than two per cent below the final quarter of 1955, a less-than-normal decline. Despite the movement in total, operations of 60 per cent of the container industries or products showed an increase in production or shipments.

C of C Names Committee on Transport and Communications

Appointment of the 46-member Transportation and Communication Committee of the Chamber of Commerce of the United States, with J. H. Carmichael, president of Capital Airlines, Inc., as chairman, has been announced.

The Committee is composed of top executives from each of the forms of transportation: rail, highway, water, air, pipe lines, freight forwarder, and executives from the industrial traffic management field. Representatives from the communications industry, warehousing, local transit and parking round out the Committee personnel.

—DA—
The Baltimore and Ohio Railroad has inaugurated TOFCEE service between New York and Youngstown, Akron, Cleveland, Chicago, Toledo, Cincinnati, Indianapolis, Louisville and East St. Louis-St. Louis. The B&O also joined with the Central Railroad of New Jersey in providing trailer-on-flat-car service to and from 32 stations in northern New Jersey and the key points covered in the new extension. This traffic will move via the CRNJ, the Reading Co., and the B&O.

Trailer Pool Contemplated

—DA—
Harry O. Mathews, president of the Private Truck Council of America, told the 8th Annual Summer Meeting of the Truck-Trailer Manufacturers Association in Chicago last month that a trailer pool is contemplated to solve special individualized shipping problems of private carriers.

He suggested that the Joint TTMA-Automobile Manufacturers Association engineering committee meet with industries and associations representing private carriers to obtain the benefit of their guidance on equipment design.

News Briefs

National headquarters of The American Waterways Operators, Inc., has been moved to 1025 Connecticut Ave., Washington 6, D. C.

Elmer E. Metz has been appointed to the post of deputy general counsel of the Federal Maritime Board and Maritime Administration.

The ICC has announced consolidation of the field offices of the Bureau of Water Carriers and Freight Forwarders at San Francisco and Portland, Ore., effective July 2. Headquarters of the combined offices will be in Portland.

T.I.M.E., Inc., has opened a new terminal in Tulsa, Okla.

Richard J. Reynolds, of Winston-Salem, N. C., has given the State University of New York Maritime College, at Fort Schuyler, Bronx, the sum of \$20,000 to be used for the construction of a planetarium.

Pullman-Standard Car Mfg. Co. has scheduled a traveling caravan for the inspection of the P-S standardized freight car. The following cities still are to be visited: Cleveland, Aug. 9-10; Washington, Aug. 15-17; Philadelphia, Aug. 22-24; New York, Sept. 11-13.

Inter-city tonnage of general freight transported by truck during May, 1956, was up 6.4 per cent over the volume hauled during the month of April, 1956, according to the Research Department, ATA.

Dr. Elmer W. Engstrom, of Radio Corporation of America, has been appointed general chairman of the 11th Annual International Instrument-Automation Conference and Exhibit, scheduled for Sept. 17-21, in New York's new Coliseum.

White Motor Co. has renewed a \$50,000 grant to the ATA Foundation, the public information, research and educational organization of the ATA.

Reo Motors, Inc., has announced that it had expanded its line of heavy-duty vehicles by 30 new basic models within the past year, including a line of turbodiesels, eight off-highway trucks, cab-over-engine tractors, and several lightweight tandems.

The Association of American Railroads has announced a five-day seminar for shippers on proper loading and bracing of freight, in Chicago, July 30 to Aug. 3, at the Container Loading and Research and Development Laboratory of the AAR.

—DA—
Reductions in the Ohio Turnpike schedule of tolls for trucks and buses and the institution of a volume discount for commercial users of the highway have been approved by the Ohio Turnpike Commission.

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Detroit Traffic Conference



The Detroit Board of Commerce in cooperation with 12 traffic organizations, recently sponsored its annual Consignor-Carrier-Consignee Round-Up. The program was part of the 20th Annual Perfect Shipping campaign of the transportation industry. A crowd of over 1,250 persons viewed the program. The Round-Up committee, shown above, included (front row, l to r) H. Monroe Baker, Commercial Carriers, Inc.; W. L. Baumgardner, O. H. Frisbie Moving & Storage Co.; B. E. Cohoe, Ford Motor Co.; S. J. Greer, Norwalk Truck Line Co.; R. E. Johnson, Chrysler Corp.; F. H. Kleber, Pennsylvania R.R. Co.; (second row, l to r) P. Masura, National Transit Corp.; H. Simko, Detroit Terminal Railroad; A. J. Van Huss, Detroit, Toledo & Ironton R.R. Co.; J. J. Willhite, Gateway Transportation Co.; S. C. Kibu, Detroit Board of Commerce; E. C. Anderson (Round-Up Chairman) Montgomery, Ward & Co.; T. Sisum, J. L. Hudson Co.; J. E. Laedlein, Wyandotte Chemical Corp.

Men in the News

Traffic

Philip N. Deckard—appointed general terminal and truck manager, Pacific Molasses Co., San Francisco.



H. A. Lincoln (left)—named director of traffic, Fibreboard Paper Products Corp., San Francisco, Calif.
R. C. Chamberlain (right)—new gtm.

Edwin S. Voety—appointed traffic manager, Westinghouse Lamp Div., Bloomfield, N. J.



J. Brock—new traffic manager, Canada Dry Ginger Ale, Inc., New York, N. Y.

R. L. Bryant—appointed manager of distribution and traffic, Texas Div. of Dow Chemical Co., Freeport, Tex. Herman W. Westerman—promoted to traffic manager in charge of the division's domestic rail and motor freight traffic.

John Knox—named traffic manager, Westinghouse Electric Appliance Div., Pittsburgh, Pa.

Harry Timmerman—promoted to manager of the Traffic Department, Zellerbach Paper Co.

Arlington R. Meek—appointed general traffic manager, Solvay Process Div., Allied Chemical & Dye Corp.

J. B. Morris—appointed assistant general traffic manager, the Goodyear Tire & Rubber Co., Akron, Ohio.

John A. Hart—named vice president for traffic National Biscuit Co., New York, N. Y.

Transportation—Air

J. D. Hungerford—named assistant vice president, Schedules and Tariffs; James H. Cobb, assistant vice president, Advertising; William G. Whitney, assistant vice president, Planning, American Airlines, New York, N. Y.

Robert J. Smith—elected president and general manager, Slick Airways, Inc., Burbank, Calif.

—Highway

George B. Graff—retired as general traffic manager of T.I.M.E., Inc., Lubbock, Tex.

Nick J. Catsinas, labor relations and personnel; William J. Blohm, (Please Turn to Page 86)

Coming Events

- Aug. 5-8—Movers' Conference of America, Annual Meeting, Edgewater Beach Hotel, Chicago, Ill.
- Sept. 10-12—Packaging Institute, Annual Forum, Statler Hotel, Cleveland, Ohio
- Sept. 10-13—National Truck Leasing System, 12th Annual Meeting, Congress Hotel, Chicago, Ill.
- Sept. 11-14—Packaging Machinery Mfr's. Institute, Packaging, Machinery & Maintenance Exposition of 1956, Public Auditorium, Cleveland, Ohio
- Sept. 13-15—Southeastern Warehousemen & Movers' Assn., Annual Convention, Balmoral Hotel, Miami Beach, Fla.
- Sept. 17-19—Industrial Relations Forum, ATA, Annual Meeting, San Francisco, Calif.
- Sept. 17-21—11th Annual International Instrument-Automation Conference & Exhibit, New Coliseum, New York, N. Y.
- Sept. 20-21—American Society of Traffic & Transportation, 10th Anniversary Meeting, Fairmont Hotel, San Francisco, Calif.
- Sept. 23-26—Produce Packaging Assn., Sixth Annual Conference & Exposition, Miami Beach, Fla.
- Oct. 9-11—Armed Forces Military-Industry Symposium on Packaging & Materials Handling, Washington, D. C.
- Oct. 10-11—The Material Handling Institute, Inc., Fall Meeting, The Traymore Hotel, Atlantic City, N. J.
- Oct. 10-12—National Transportation Meeting, Society of Automotive Engineers, Hotel New Yorker, New York, N. Y.
- Oct. 14-17—National Defense Transportation Assn., Annual Convention, Hotel Newhouse, Salt Lake City, Utah
- Oct. 16-18—National Assn. of Shippers Advisory Boards, Ambassador Hotel, Los Angeles, Calif.
- Oct. 17-23—Regular Common Carrier Conference, ATA, Waldorf-Astoria Hotel, New York, N. Y.
- Oct. 18-21—National Truck Roadshow, American Trucking Associations, Belmont Plaza Hotel and Kingsbridge Armory, New York, N. Y.
- Oct. 21-26—American Trucking Assns., Annual Meeting, Waldorf-Astoria Hotel, New York, N. Y. (Executive Committee, Oct. 21-24)
- Oct. 22-25—SIPMHE, Annual Convention Exposition, Short Course & Competition, Keil Auditorium, St. Louis, Mo.
- Oct. 22-26—National Safety Congress & Exposition, 44th Meeting, Chicago, Ill.
- Oct. 24-25—Associated Traffic Clubs of America, 33rd Annual Meeting, Miami Beach, Fla.
- Oct. 29-31—Truck Body Equipment Assn., Annual Convention & Exhibit, Sherman Hotel, Chicago, Ill.
- Oct. 31-Nov. 1-2—Time & Motion Study and Management Clinic, Industrial Management Society, Hotel Sherman, Chicago, Ill.
- Nov. 12-14—Grocery Mfrs. of America, Annual Meeting, Waldorf-Astoria, New York, N. Y.
- Dec. 10-11—The Material Handling Institute, Inc., Annual Meeting, Biltmore Hotel, New York City, N. Y.



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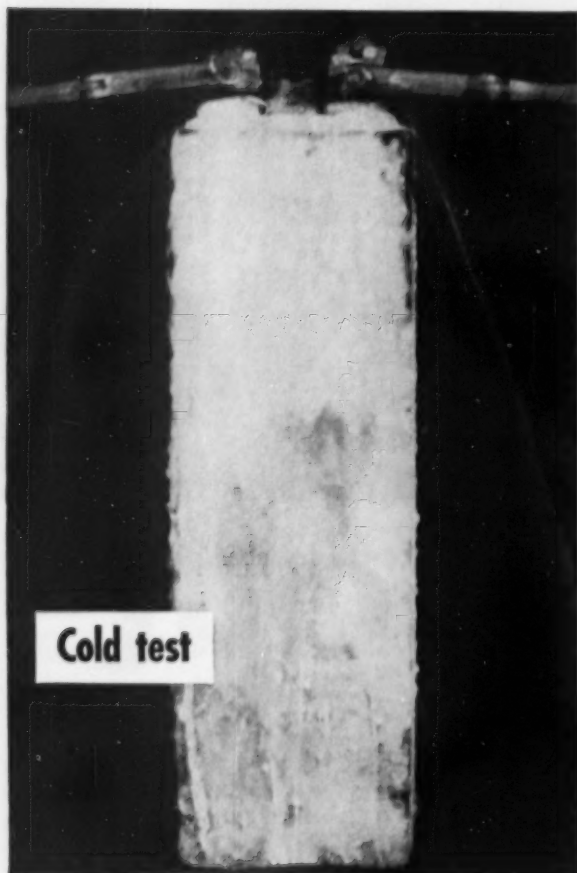
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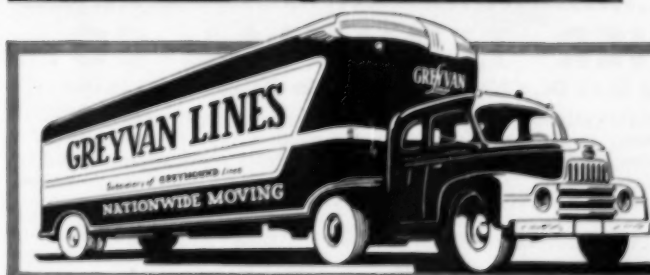
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Name Company

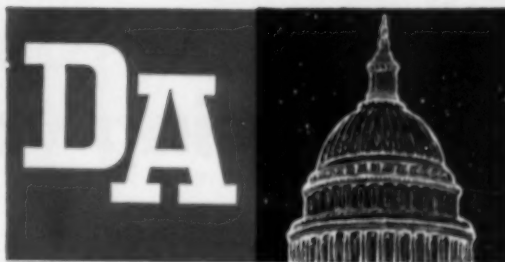
Address City Zone State

See our complete listing in Classified Section — locations to serve your every need.

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DISTRIBUTION AGE

WASHINGTON



By Ray M. Stroupe, *Chilton Washington News Bureau*

TO GUIDE TRANSPORT—George A. Landry, since 1954 an Office of Defense Mobilization executive concerned with materials, becomes the first ODM assistant director for transportation. Mr. Landry came to the agency from the Western Electric Co., where he was vice president, purchasing and traffic division. During World War II, he served the government with the War Production Board.

ICC FUNDS RAISED — Bigger budget for the ICC in this fiscal year will permit better policing of safety rules for carriers. With nearly \$14.9 million in new money, the agency intends to raise the strength of the Bureau of Motor Carriers' safety inspector staff to 100 — more than double the number last June 30. The new total is to be reached late this year. ICC also is increasing its rail car service agents from 30 to 70.

OBJECTS TO LIMIT—Extra free time for unloading export goods from rail cars at Great Lakes ports is advocated by Sen. Potter, R., Mich. A measure he introduced in July would remove the two-day limit on free time, which he describes as discriminatory against Great Lakes cities. At other U. S. ports, he notes, six days are allowed before demurrage is charged.

RATE BOOST GRANTED—Authority granted by the ICC enables railroads to make new demurrage rates effective Sept. 1. Rates will be advanced to \$4 for each of the first two chargeable days and \$7 for each of the next two. Thereafter the charge is to be \$10 per day. Change in fees is not designed to affect the free time allowance. Car-owning railroads recently approved the increased rates.

AWAIT LOADING RISE—Increases of up to 8.8 per cent in freight carloadings this quarter, compared with those in the same months last year, were predicted in U. S. shipping regions prior to the steel strike. Only the Great Lakes area anticipated a drop during the current quarter, the AAR reveals. Nationally, the gain over the 1955 figures was forecast as 4.4 per cent, with carloadings numbering more than 8.1 million.

URGE COST COVERAGE—Parcel post rates that will cover both direct and indirect costs of service are urged by the LCNC. Privately-owned car-

riers now are required to subsidize government competition for business, the local truckers maintain. They back a Hoover Commission plan to provide carriers with better protection from diversion of normal commercial shipments to parcel post delivery.

MAY REVIVE MEASURE—Recommendations for major changes in national transportation policy, getting no final treatment by House Commerce Committee, may reappear in Congress early in 1957.

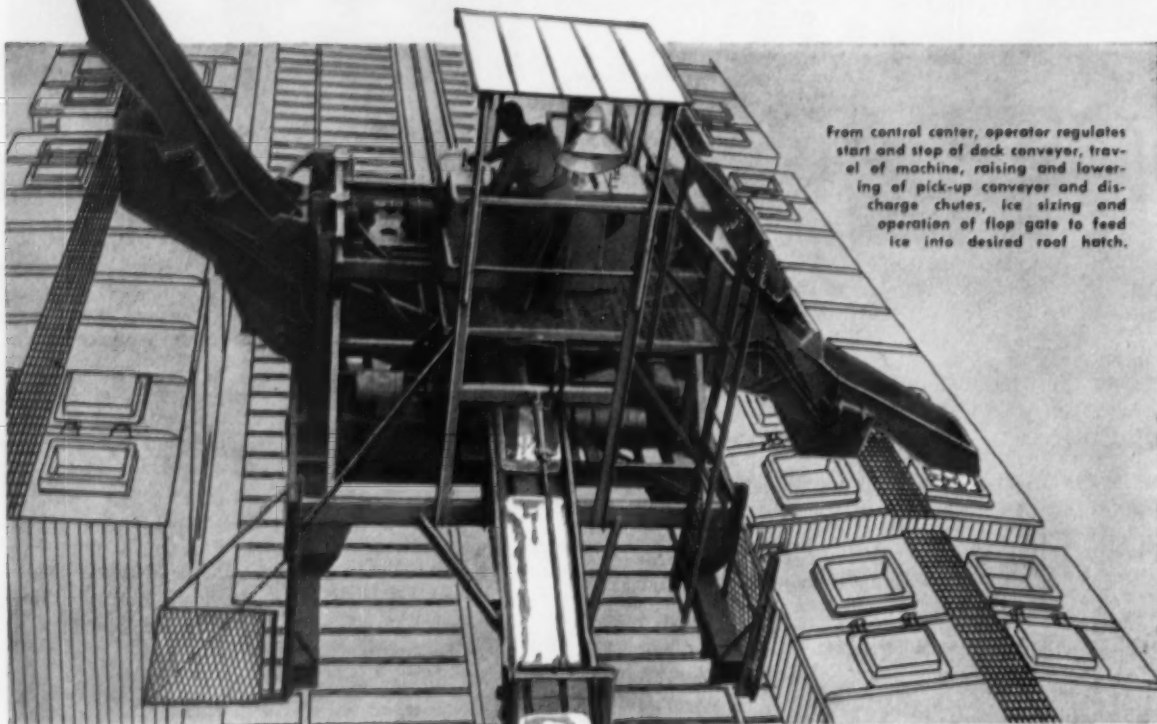
REJECT OWNER STUDY—Finding who owns the Atlantic Coast Line R. R. is not of primary importance at this time, ICC officials decide. They refuse a request, filed by Florida East Coast Ry. securities holders, that A. C. L. ownership be determined immediately. ICC is reviewing an A. C. L. bid for permission to reorganize the bankrupt East Coast road. Under consideration are technical details of the reorganization plan.

CAR QUOTAS HINTED—Federal control over the number of box cars a railroad must own is foreshadowed on Capitol Hill. This summer Congress was asked to pass a bill requiring using roads to return cars promptly to owners. It offered ICC the power to raise the use charge higher than the present \$2.40 a day per car. A possible follow-up is a law to insure that each road owns its "quota" of cars, as determined by the ICC.

LOANS AID STORES—Commodities storage firms are getting new funds for expansion, through SBA. One of a number of new loans participated in by SBA and commercial lenders, for \$275,000, goes to Western Grain Inc., Garden City, Kans. Another, for \$135,000, is made to Clarendon Grain Co., Clarendon, Tex. Sheldon Grain & Lumber Co., storage concern in Sheldon, Mo., gets a direct SBA loan of \$35,000.

SAVING SESSION SET—Dehumidified storage is one topic for discussion at a Navy-sponsored symposium on preservation for mobilization requirements. Problems of protecting automotive engines, vehicles, and other power equipment will be examined at the conference, Oct. 23-25, at Port Hueneme, Calif. Bureau of Yards and Docks is inviting equipment builders, preservative manufacturers, and research specialists to take part.

NOW — faster bunker icing using your present dock



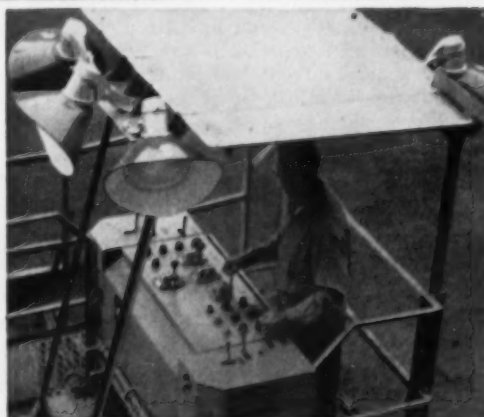
From control center, operator regulates start and stop of dock conveyor, travel of machine, raising and lowering of pick-up conveyor and discharge chutes, ice sizing and operation of flap gate to feed ice into desired roof hatch.

One man controls LINK-BELT car icer

FOR many railroad icing stations, costly revisions in dock structure have been a big obstacle to mechanized car icing. But not today. The Link-Belt Model 55 car icer is adaptable to typical existing docks. Moreover, it can service cars of all heights, with hatch covers of all types.

High capacity and flexibility are key features. This machine receives up to forty 300- or 400-pound cakes of ice per minute "on the flat" from the dock conveyor . . . delivers coarse, crushed or chunk ice automatically. Reversible cross conveyor and dual discharge chutes permit high-speed icing from either side. No manual handling — just one man needed at the controls. In addition, travel speed of 300 feet per minute and hydraulic track brakes provide fast, sure positioning.

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ELEVATED PLATFORM gives operator full visibility in all directions. Controls are functionally grouped within easy reach to reduce operator fatigue and simplify operation. Four floodlights illuminate entire work area for top-speed icing around the clock.

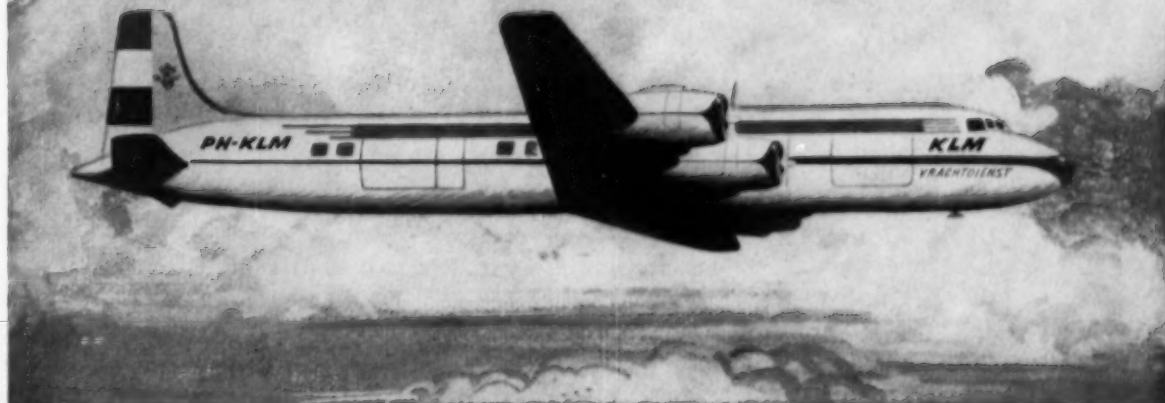
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LINK-BELT
ICING EQUIPMENT

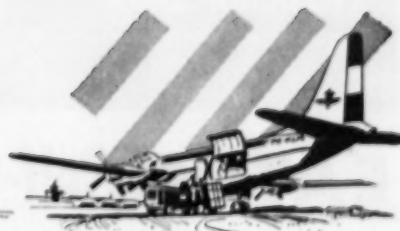
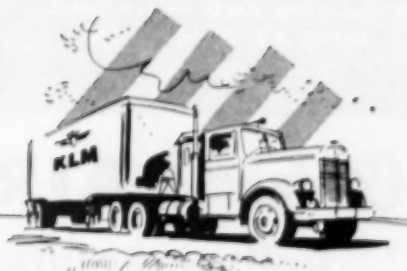
LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World.

Circle No. 12 on Card, Facing Page 69, for more information

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MOVE FAST ON THE GROUND, TOO!

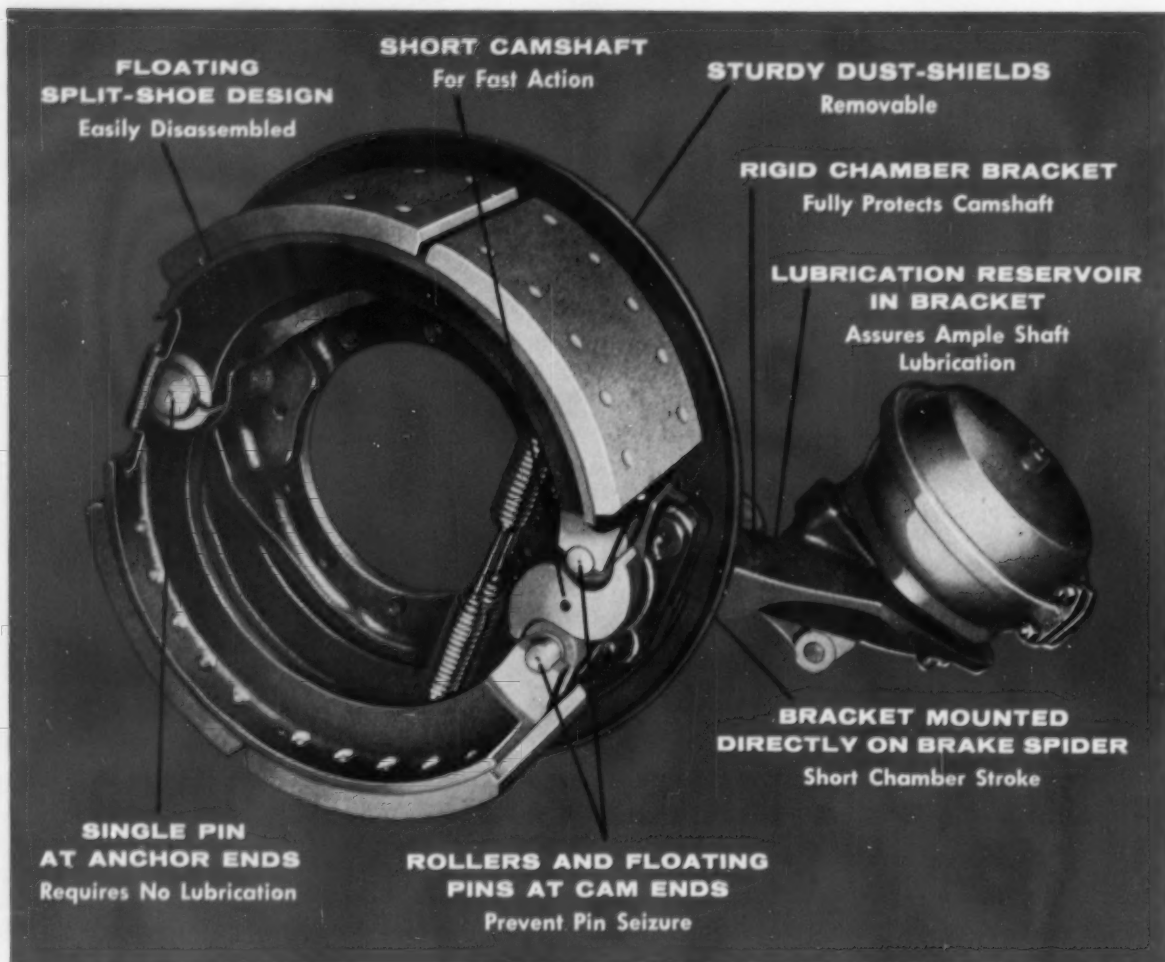
***P.S.**—Personalized Service—is the reason more and more shippers look to KLM for fast, dependable Air Cargo transportation across the Atlantic. Every member of the KLM team—from Account Representative, Cargo Expediter, Cargo Handler, to the pilot of the plane—takes a personal interest in *your* shipment!

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EATON

AXLE DIVISION
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CLEVELAND, OHIO

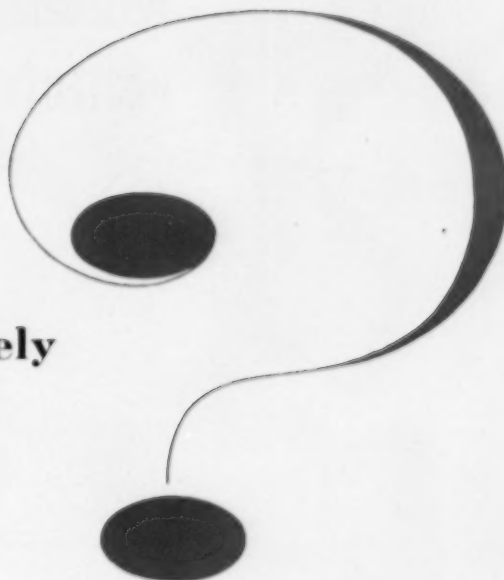


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THE COLUMBUS TERMINAL WAREHOUSE CO.

COLUMBUS, OHIO



protects its property *Automatically....*
gets better **FIRE** and **BURGLARY**
PROTECTION and

SAVES
\$25,000
A YEAR

ADT Automatic Protection Service has been included in our warehouse operations for many years, as we feel it provides the best protection available against fire and burglary. We now have ADT Protection in six warehouses, which, incidentally, enables us to save approximately \$25,000 a year, as compared with less effective means of protection.

E. C. Adams

Vice President and General Manager

Columbus Terminal Warehouse Company takes no chances with property entrusted to its care. That's one reason the concern is among the nation's leading warehouse organizations.

Illustrated are four of the company's six buildings protected *automatically* by ADT Sprinkler Supervisory and Waterflow Alarm, Aero Automatic Fire Alarm, and Burglar Alarm Services. Mr. Adams' expression of complete satisfaction typifies the opinion of thousands of warehousemen and other businessmen who know that ADT Automatic Protection Services give greater security for property, profits, customers' goods and employees' jobs than other methods, *and at less expense.*

ADT

Why not find out what ADT can do for you?

Whether your buildings are old or new, *sprinklered* or *unsprinklered*, there is an appropriate ADT Automatic Protection Service to guard against fire, burglary, intrusion, heating-system failure, and other hazards. An ADT specialist will show you how combinations of these services can protect your property. Call our local sales office if we are listed in your phone book; or write to our Executive Offices.

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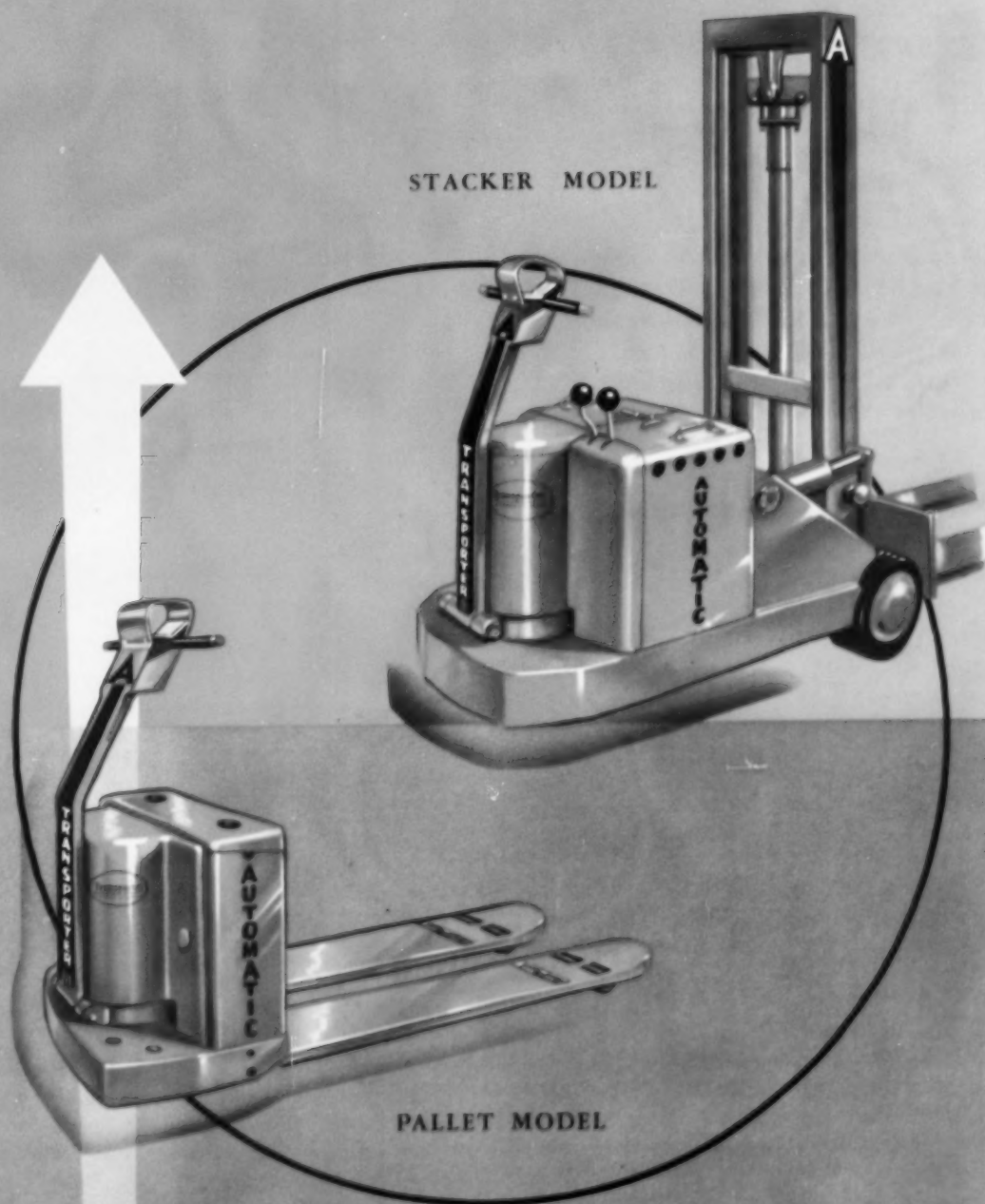
A NATIONWIDE ORGANIZATION

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Complete line of the completely NEW

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Is Now Available . . . Look Inside For Details

Presenting Automatic's ALL NEW Stack **Transporter**

Completely Redesigned...New in Every Detail

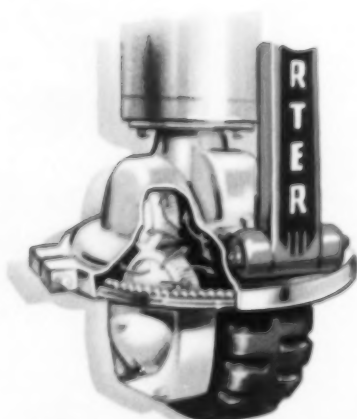
Shortest truck of its type now available, the all new TRANSPORTER Stacker offers a positive gain in ease of handling particularly in close quarters. This has been accomplished without compromise or sacrifice at any point to gain extra compactness. In-

stead, precisely calculated redistribution of weight has substantially improved overall stability.

The entire truck has been completely redesigned at every point where mechanical simplification and/or increased strength will help eliminate

costly do-
sum total
has been
efficiency
assurance
always a

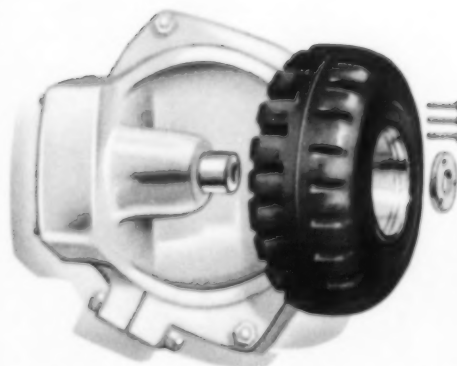
*Exclusive New Features Simplify Operation
and Maintenance...Reduce Down Time.*



ALL NEW AUTOMATIC LUBRICATION OF ALL PARTS IN POWER HEAD
Oil within the new TRANSPORTER'S all-gear-driven power head feeds automatically to all bearings. This includes the ball bearing race for easier steering.

ALL NEW 3-SPEED BUTTERFLY CONTROL

New 3-Step control, forward and reverse permits inching with smoothness and precision never before possible. Prevents too-fast starts—a common cause of accidents—gives better control of speed. New simplified mounting and construction make service easier, faster.



ALL NEW QUICK-CHANGE DRIVE WHEEL

Permits drive wheel change in as little as 5 minutes! Simply remove the steel plate which holds this wheel in place, reverse it and it becomes an effective wheel puller. No tools needed. An exclusive Automatic feature.



Turn to Page 4 of This Insert for Still More ALL NEW Transporter Features

Cracker Model

ter

Detail

costly down time in the future. The sum total of all these improvements has been a marked advance in both efficiency and reliability...maximum assurance of superior performance always available when needed.

Time...Cut Costs



QUICK-OFF WHEEL

Wheel change in minutes! Simply remove steel plate that holds wheel in place, replace it with exclusive Auto-

Features

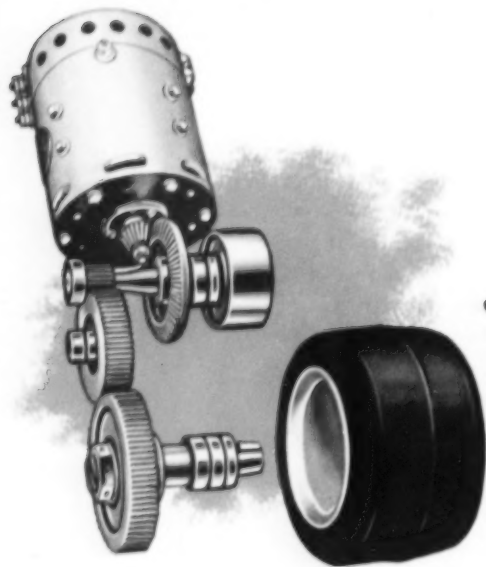


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Heavy section, rolled manganese alloy steel uprights of a superior rigidity, flange strength and wear resistance. Friction negligible...Lubrication or other maintenance is rarely needed.

New Simplified Design...Sturdier Construction...

A New Conception of Reliability



ALL NEW SIMPLIFIED

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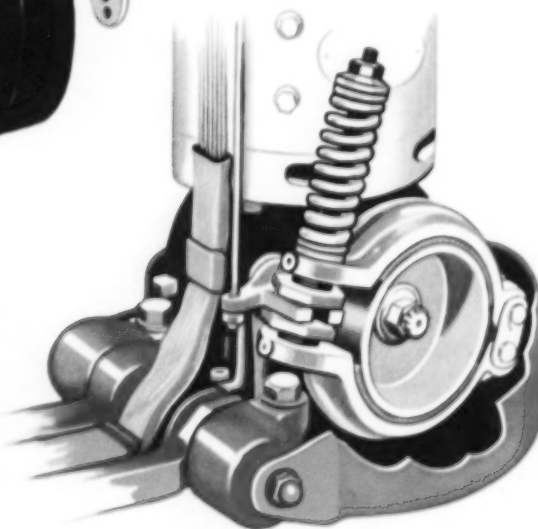
Sturdiest gear train of its type. All gears are forged from rugged alloy steel, heat treated for extra toughness and all are mounted in anti-friction bearings. Extreme simplicity permits much heavier gear construction—tremendous reserve strength—reduced wear—effective insurance against down time. Only one bearing supports power unit in frame eliminating all problems of alignment.



ALL NEW SIMPLIFIED

HANDLE ACTUATED BRAKE

Spring applied brake of new simplified design—smoother, more positive action—spring pressure is adjustable to meet special operational requirements. Brake is fully released when handle is in driving position... automatically sets full-on with handle either vertical or horizontal.



The foregoing exclusive features do not by any means complete the list of improvements which make these new Automatic TRANSPORTERS outstandingly the leaders in their field. If, therefore, operator-led trucks figure in your materials handling plans, send today for a complete set of TRANSPORTER Specifications. No obligation—just mail the coupon.

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WORLD'S LARGEST EXCLUSIVE BUILDER
OF ELECTRIC-DRIVEN INDUSTRIAL TRUCKS

ESTABLISHMENTS operating public warehousing facilities numbered 7,603 and had revenues of \$761,893,000 according to preliminary results of the 1954 Census of Business announced recently by the Bureau of the Census, U. S. Department of Commerce. These establishments reported 94,872 paid employees, and an annual payroll of \$304,627,000. Occupiable public warehouse space reported was 309,152,000 sq ft of dry space, 349,708,000 cu ft of refrigerated space, 276,647,000 gal of liquid space, and 119,723,000 bu of grain bin space.

General Merchandise

At the end of 1954 there were 1,197 establishments primarily engaged in warehousing general merchandise for others. Revenue totaled \$170 million. Payroll, including salaries and wages of executives and corporation officers but not compensation of proprietor-owners of unincorporated businesses, totaled \$81 million, or 48 per cent of total revenue.

The industry provided employment for 22,204 persons on a payroll basis, plus 633 owners of unincorporated business. Occupiable space consisted of 108 million sq ft of dry space, 23 million cu ft of refrigerated space, and 0.6 million gal of bulk liquid space.

Household Goods

There were 1,828 establishments primarily engaged in warehousing household goods for the general public. Revenue for the year totaled \$204 million, with a

Warehouse Census Charts Industry Growth

Latest Bureau of Census figures list

7,603 public warehouses, with revenues

of \$762 million, 94,872 paid employees

payroll of \$92 million, or 45 per cent of revenue.

The industry provided employment for 27,616 persons—26,179 on a payroll basis, plus 1,437 owners of unincorporated businesses. Occupiable space included 51 million sq ft of dry space and 2 million cu ft of refrigerated space.

Growth may be illustrated by the fact that the general merchandise and household goods indus-

tries combined reported 3,025 establishments with a total of 159 million sq ft of occupiable space in 1954, compared with 2,749 firms with 130 million sq ft in 1951; and 2,761 firms with 148 million sq ft of public storage space in 1941.

Refrigerated

There were 585 refrigerated warehouses primarily engaged in
(Please Turn to Page 98)

Public Merchandise Warehouses and Related Facilities by Type of Facility

State and type of warehouse facility	Establishments (number)	Revenue (\$1,000)	Payroll, entire year (\$1,000)	Paid employees workweek ended nearest Nov. 15 (number)	Active proprietors of unincorporated businesses Nov. 15 (number)	Occupiable public merchandise warehouse space—Dec. 31, 1954				Frozen food lockers—Dec. 31, 1954	
						Dry space (1,000 sq ft)	Refrigerated space (1,000 cu ft)	Bulk liquid space (1,000 gal)	Grain bin space (1,000 bu)	Food lockers installed (number)	Bulk freezer storage space (cu ft)
United States total.....	7,603	761,893	304,627	94,872	5,154	309,152	349,708	276,647	119,723	1,373,358	2,487,282
General merchandise.....	1,197	169,502	81,226	22,204	633	108,124	22,584	641	.....	.....	.....
Household goods.....	1,828	204,169	92,117	26,179	1,437	81,296	2,060	.....	.....	.....	.....
Refrigerated.....	585	124,674	49,611	13,237	190	9,872	296,829	137	289	62,367	66,542
Food locker plants.....	2,485	95,616	18,978	8,278	2,235	5,494	22,944	65	.....	1,310,471	2,400,720
Farm products.....	1,083	126,690	45,857	20,494	417	122,566	80	56	119,454	520	.....
Special warehouses.....	267	28,908	10,978	2,859	133	9,653	5,281	279,748	.....	.....	.....
Freight trucking terminals*	158	12,336	6,864	1,821	109	2,238	.....	.....	.....	.....	.....

* Does not include terminals of firms which also operate trucks.



FIRE PREVENTION

Part I—Causes

1955 Warehouse Fires

Exceed \$19,000,000

By Warren J. Baker

*Manager, Technical Dept.,
Insurance Co. of North America;
Chairman General Storage Committee
National Fire Protection Assn.*

Of 41 fires in 1955, 92 per cent involved private warehouses. High stacking, narrow aisles, lack of fire walls and doors blamed

DURING 1955, there were 41 major warehouse fires. The total loss exceeded \$19,000,000, averaging nearly a half million dollars per fire. Thirty-eight of these fires—over 92 per cent—were in the private warehouse category and three—less than eight per cent—were public warehouses; two general merchandise and one household goods.

Without question, 1955 was a bad year for warehouse fires. Yet, the number and average loss was not as bad as in 1954, when there were 54 such large fires.

Two-Year Comparison

A study of warehouse fires during the last two years, as well as those in the past, reveals several striking similarities. For example, in 1955, 35 of the 41 large fires—85 per cent—were in buildings unprotected by sprinklers or automatic detection systems. In 1954, 83 per cent of the major fires also were in buildings similarly unprotected.

In 1955, firemen experienced difficulties in extinguishing fires because of excessive high piling of the stored commodities, and inadequate aisle space. The complaint was the same for the previous year. In both years, as well as those in the past, the fires spread rapidly because of large areas undivided by fire walls, openings between the areas un-

protected by fire doors, and plain glass instead of wire glass windows.

Contents of the buildings in which the major fires occurred in 1955 included building materials, cotton, electrical equipment, food, furniture, grain, hardware, paper, plumbing supplies, rags, rubber, rugs, and so on. The previous year, the contents included building materials, cosmetics, cotton, electrical equipment, food, furniture, grain, machinery, paper, rubber, wood products, and so on. In both years, several buildings contained non-combustible materials, so it was the structures themselves which furnished the fuel.

Principal Causes of Fires

A study of over 5,000 fires in warehouses shows that there are five principal causes:

1. Smoking and matches.
2. Spontaneous heating.
3. Defective heating equipment.
4. Exposure from outside fires.
5. Electrical devices.

In all fires, we find one common and disturbing fact. The contents loss in dollar value generally amounts to three times the building value. It runs as high as \$800 per sq ft. Just as a matter of comparison, the value of the average well-equipped office will range between \$5 to \$10 per sq ft.

Since 1950, when there were but 23 major warehouse fires, the trend in number and intensity has been upward. We can only hope that, starting with 1955, a new downward trend is in the making. Yet, there are many factors militating against this possibility:

1. Shortage of adequate storage space.
2. Increased cost of industry's warehousing.
3. Shortage and increased cost of labor.
4. The need to stock pile large volumes of raw, and in-process material; sometimes in critical demand.

In analyzing warehouse space, we find that the construction of additional buildings has not been able to keep up with industry's storage space demands. Also, the cost of suitable construction exceeds the allowable charge by industry management for warehousing. As a result, management resists building additional adequate space. Often it resorts to the leasing of buildings obsolete for manufacturing but unfortunately, still considered satisfactory for storage.

Economics Versus Protection

Economics in warehousing operations are creating a new pattern in warehouse design, calling for large one-story buildings, undivided areas and high ceilings.



Recent private warehouse fire in Buffalo, N. Y.



Recent public warehouse fire in Philadelphia

Admittedly, these buildings are excellent for the mechanical handling of stocks, but difficult for accessibility for fire fighting.

Equipment Influence

The shortage and cost of labor has produced a revolutionary change resulting in the development and accelerated use of motorized tractors and fork-lift trucks. This equipment not only is affecting methods of storage but, actually, increasing the hazards in many respects.

More consideration must be given to the engineering elements of fire and explosion hazards in warehouses; including design, operation and maintenance. Architects and management must recognize the effect that construction, protection and arrangement has on material in storage. It must give consideration to the combustibility of the material itself; ranging as it does from dangerous chemicals to non-combustible metal parts.

Every storage operation first

should be laid out on a drafting table. A competent fire protection engineer should be called in for consultation, or a close study should be made of the standards developed by the National Fire Protection Association. Unfortunately, warehousing, at least private warehousing, does not get that consideration. Architects and management seem reluctant to spend some time thinking about how a fire might occur, how it might be prevented, how it might be extinguished, and its effect on large area buildings.

It should be pointed out that the standards established by the National Fire Protection Association are not arrived at by whim or chance. All recommendations are the result of combined efforts of experienced fire protection engineers and representatives from the various branches of industry.

The General Storage Committee has just released a set of standards which have been approved by the Association. These will be made available to anyone respon-

sible for warehousing. The data covers, in considerable detail, safe warehousing practices as well as safe building construction, protection, maintenance and house-keeping.

Outdoor Storage

Most of the facts applicable to indoor storage also can be observed profitably for outdoor storage. The site should be carefully selected, taking into consideration public protection, accessibility, terrain, clear spaces, and so on.

While the limitation in piling might not be as strict as for indoor storage, it still is necessary that the material be piled in as small a unit as possible, watching carefully the stability of each pile. Main roads should be at least 15 ft in width and aisles at least 10 ft wide; although, it would be much better if they were as high as the piles.

Naturally, such outdoor storage always should be fenced with adequate facilities for egress by the

(Please Turn to Page 89)

Protection Equipment— First Line of Fire Defense

By James S. Patterson
DA Associate Editor

The right equipment in the right place, a key to the protection of both building and contents, can influence your insurance rate

DEFENSE against fire requires a continuous survey of the situation on the part of the warehouse operator (public or private), the insurance engineer, and the public and private fire fighters. Such a survey should produce a definite plan of action and a cooperative effort. The need for a suitable fire prevention and protection program becomes all the more imperative with the consideration of high property and contents values.

Insurance Rate Influenced

The fire insurance rate can be influenced by the approved types and quantities of fire protection equipment in a structure for which a rate is specifically determined by the fire insurance rating bureau. As the rate is influenced largely by the susceptibility of the building and its contents to fire, even minor structural changes may materially increase or decrease the fire hazard.

Examples of improper construction or installations that may affect insurance costs are:

1. Substandard fire walls.
2. Fuel oil system improperly installed.
3. Combustible types of acoustical or insulating materials.
4. Smoke pipes or heating ducts too close to combustible material.
5. Improperly protected openings between floors or into concealed spaces.
6. Lack of fireproofing in buildings of non-resistive construction.

7. Lack of sufficient fire cut-offs in property of large area.

8. Air conditioning ducts extending between floors or sections without approved fire dampers.

9. Lack of parapets and approved wire glass windows where property is exposed to other buildings.

10. Approved fire doors improperly installed or maintained.

11. Hazardous processes within the area which are neither properly safeguarded nor cut off from the remainder of the building by approved fire walls and fire doors, or by fire resistive construction.

Approved Equipment

The heart of a suitable fire prevention and protection program is fire-fighting equipment. The word "approved" as used means acceptable to the authority having jurisdiction. For insurance purposes the authority referred to is the insurance inspection bureau, department, or organization having jurisdiction.

The right extinguisher in the right place is one key to safe industrial fire protection. Other considerations are the proper use, inspection, and maintenance of equipment.

First-aid fire appliances are essentially first-aid devices pro-

vided close at hand for immediate use when needed. They are designed to cope with fires in their incipency, and are considered necessary even though the property is equipped with automatic sprinklers or standpipe and hose.

Many types of first-aid fire appliances are available. Each type is of specific value, but all are not equally effective upon the various kinds of fires. Definite consideration in the selection of extinguishers should be given, based on the class of fire determined by the nature of the building contents.

Proper Handling

The methods of operation of the various types of appliances generally are apparent from their very nature, and are indicated prominently on each extinguisher. However, it is important to give instructions to employees and to occupants of the property as to their use. Through familiarity, they may more intelligently and confidently handle the extinguishers during the excitement of a fire. These instructions should be supplemented by periodic demonstrations.

Whenever it is necessary to utilize a fire extinguisher, the fire department should be called si-



FIRE PREVENTION

Part II—Equipment Review

multaneously so that additional help is available if it is needed.

Maintenance

It is important that the instructions regarding maintenance be followed carefully so that the first-aid appliances always will be fully charged; in their designated places at all times; and in a condition which will permit efficient operation without delay.

Extinguishers should be examined at regular intervals—several times a year—to make certain that they have not been tampered with or removed from their locations; to detect any injuries; also to see that they are not empty.

If an extinguisher shows evidence of corrosion or mechanical injury, it may be unsafe for further use and either should be returned to the manufacturer for examination, or subjected to a hydrostatic pressure test by a qualified service agency, a qualified testing laboratory, or the user of the extinguisher if competent personnel and facilities are available.

Hazard Protection

In many instances temporary hazards occur from time to time. A good practice is to maintain a few portable stands or racks consisting of, for example, a horizontal bar on uprights with feet. Locate these stands where necessary and hang on them such fire appliances as are suited to the special hazard to be protected. In locations where fire appliances are likely to be obscured by piles of stock, or in large areas, means should be provided to indicate conspicuously the location of the appliances.



Typical ADT central station. The tape registers are for receiving fire alarm and signals from watchmen, and also from supervised automatic sprinkler systems

Classification of Fires

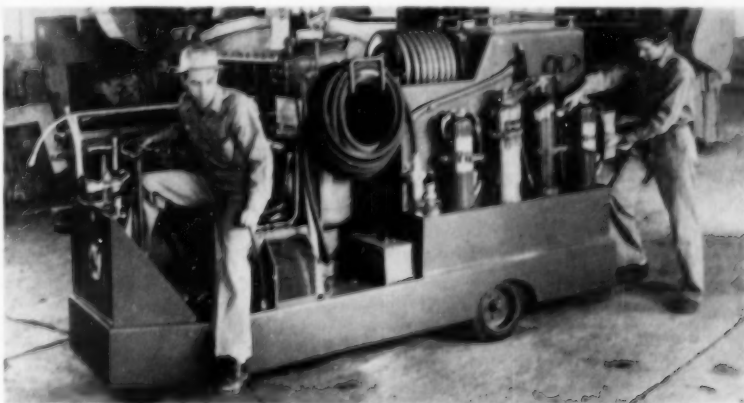
For all practical purposes there are three general classes of fires:

Class A Fires may be defined as fires in ordinary combustible materials where the **QUENCHING** and cooling effects of quantities of water, or solutions containing large percentages of water, is of first importance.

Class B Fires may be defined as fires in flammable liquids, greases, etc., where a **BLANKETING** effect is essential.

Class C Fires may be defined as fires in electrical equipment, where the use of a **NON-CONDUCTING** extinguishing agent is of first importance.

Indoor fire trucks, designed to carry a wide variety of fire fighting equipment and for use by fire brigades, have been announced by the Ansul Chemical Co.



As a storage plan must be adapted to the material stored, so the extinguisher must be selected on the basis of the fires which may occur. The number and location of these units should be such that an employee will not have to

go more than 50 ft to find one.

Additional units may be required for hazards, such as electric motors and power trucks. The suggested standards for both indoor industrial trucks and high-
(Please Turn Page)

TYPE	FOAM	CARBON DIOXIDE	DRY CHEMICAL	BROMOCHLOROMETHANE (CB Liquid)
METHOD OF OPERATING	INVERT	OPEN VALVE	OPEN VALVE AND NOZZLE	PULL TRIGGER
METHOD OF DISCHARGING EXTINGUISHING AGENT	CHEMICAL REACTION	PRESSURE STORED IN CYLINDER	PRESSURE STORED IN CYLINDERS	STORED AIR PRESSURE
RATED LIQUID CAPACITY OF MOST COMMON SIZE	2½ GALLONS	15 LBS.	25 LBS.	1 QUART
QUANTITY OF PRINCIPAL EXTINGUISHING AGENT PRODUCED	18 TO 25 GALLONS	Quantity variable—about 9 cu. ft. per pound of gas at normal temperature.	APPROX. 24 LBS.	Quantity variable—depends upon amount of liquid which comes in contact with heat of fire.
EFFECTIVE RANGE OF STREAM	35 TO 40 FEET	6 TO 8 FEET under full pressure	20 FEET	30 FEET
APPROX. DURATION OF DISCHARGE AT ROOM TEMP.	60 SECONDS	25 SECONDS	16 SECONDS	25 TO 30 SECONDS
NATURE OF PRINCIPAL EXTINGUISHING AGENT	FIREFOAM a mass of bubbles filled with carbon dioxide gas.	CARBON DIOXIDE GAS AND SNOW	DRY CHEMICAL	FREE GAS produced when liquid is vaporized by heat of fire.
PRINCIPAL EXTINGUISHING EFFECT	BLANKETING	SMOTHERING	SMOTHERING	SMOTHERING
FOR USE ON CLASS A FIRES	YES BEST AVAILABLE for use in places involving Class "A" fires because of desirable characteristics not possessed by any other extinguishing agent (fireproofing effect; smaller wetting effect, etc.). Must be kept in heated cabinet when installed in places subject to freezing temperatures.	NO Cooling and quenching agents are more effective on deep-seated Class "A" fires. However, this type is effective on superficial Class "A" fires. Anti-freeze quality; wide range expansion of gas; formation of carbon dioxide snow.	NO Cooling and quenching agents are more effective on deep-seated Class "A" fires.	NO Cooling and quenching agents more effective on Class "A" fires because the fire is likely to be deep-seated. This type is effective on superficial Class "A" fires of small size, particularly where the surrounding structure confines the gas to seat of the fire.
FOR USE ON CLASS B FIRES	YES BEST AVAILABLE for use in places involving Class "B" fires because of characteristics not possessed by any other type.	YES especially so under freezing conditions. Ideal for running or dripping flammable liquid fires. Large capacity adds to extinguishing properties of this type.	YES especially so under freezing conditions. Ideal for spill or running and dripping flammable liquid fires. Large capacity adds to extinguishing properties of this agent.	YES Underwriters' rating below indicates the relative effectiveness compared to other types. Small size and anti-freeze properties of this type are two of its valuable features.
FOR USE ON CLASS C FIRES	NO	YES Excellent for incipient fires in flammable liquids kindred to Alcohols.	YES Excellent for incipient fires in flammable liquids kindred to Alcohols.	NO
FOR USE ON CLASS D FIRES	NO unless fires have spread beyond the extinguishing capacity of vaporizing liquid or carbon dioxide extinguishers and where current is turned off. The stream is a conductor, but a poor one.	YES Discharge is a non-conductor, has no wetting, no solvent effect and leaves no residue.	YES Discharge is a non-conductor, has no wetting, no solvent effect.	YES Because stream is a non-conductor. Satisfactory where fires have not spread beyond extinguishing capacity of extinguisher and especially in places where current is not likely to be turned off.
FOR USE ON CLASS *D FIRES	NO Unless of special splash-proof construction. Must not be exposed to freezing temperature. Not suitable for pleasure automobiles because of size.	YES because it has a smothering effect and is not subject to freezing.	YES because it has a smothering effect and is not subject to freezing. On account of its size it cannot be used on pleasure automobiles.	YES BEST AVAILABLE for Class "D" fires, because it has smothering effect and is not subject to freezing. On account of its size it can be used on pleasure automobiles.
*D-T FIRES	†YES If of splash-proof construction. Must not be exposed to freezing temperature.	YES because it has a smothering effect and is not subject to freezing.	YES because it has a smothering effect and is not subject to freezing.	YES Because it has a smothering effect and is not subject to freezing.
UNDERWRITERS' RATING	A1-B1	B1-C1	B1-C1	B2-C2

* The letters "D" and "D-T" are for convenience, no letter having been assigned to this class by Underwriters' Laboratories. † Fire Department Type Extinguisher does not

Fire Extinguisher

... Defense

Continued from Preceding Page

way trucks recommend that appropriate fire extinguishing units be securely mounted on the truck in a location readily accessible to the driver.

The locations of all extinguishers should be emphasized by the use of colors and signs to guarantee quick use and to prevent damage by mobile equipment. Standards, of the National Board of Fire Underwriters, suggest that hand-portable fire extinguishers be hung on hangers or set on brackets or shelves so that the top of the extinguisher is not more than 5 ft above the floor.

There is a tendency prevalent among some operators of ware-

houses equipped with automatic sprinklers to depreciate and neglect the portable extinguisher. However, small fires, such as those originating from careless smoking, etc., often can be extinguished before they reach the intensity sufficient to open the sprinklers.

Type and Size Important

At least one of the 41 large loss (\$250 thousand, or over) warehouse fires which occurred during 1955, might have been averted had an extinguisher of the proper type and size been available.

Automatic Sprinklers

When properly installed, with an abundant and constant water supply at proper pressure, and the equipment maintained in a

constantly operative condition, the automatic sprinkler is claimed to be the most reliable and satisfactory fire extinguishing device in use. It is suitable for effective service in practically every class of structure, and under nearly any condition of fire hazard arising from causes incident to occupancy or processes.

Both wet and dry pipe sprinkler systems are employed in warehouses. The latter is more prevalent in buildings where there is a lack of heat in cold weather. In dry pipe systems it is important that the air pressure be carefully supervised. When there is a possibility of freezing or inadequate heating in winter in warehouses protected by wet pipe systems, the temperature should be supervised.

In warehouses lacking watch-

VAPORIZING LIQUID			CHEMICAL SOLUTION Soda-Acid	CLEAR WATER	ANTI-FREEZE	PUMP TANK (Anti-freeze or plain water)
PULL TRIGGER	PUMP	PULL LEVER	INVERT	INVERT	INVERT	PUMP
STORED AIR PRESSURE	PUMPING ACTION	STORED AIR PRESSURE	CHEMICAL REACTION	GAS PRESSURE from carbon dioxide cylinder.	GAS PRESSURE from carbon dioxide cylinder.	HAND PUMPING
1 QUART	1 QUART	1 GALLON	2½ GALLONS	2½ GALLONS	2½ GALLONS	5 GALLONS also 2½ gallons
Quantity variable—depends upon amount of liquid which comes in contact with heat of fire.	Quantity variable—depends upon amount of liquid which comes in contact with heat of fire.	Quantity variable—depends upon amount of liquid which comes in contact with heat of fire.	2½ GALLONS	2½ GALLONS	2½ GALLONS	5 GALLONS also 2½ gallon
25 TO 30 FEET	20 FEET OR MORE under full pump pressure.	30 TO 40 FEET	30 TO 40 FEET	45 TO 55 FEET	45 TO 55 FEET	30 TO 40 FEET
35 SECONDS	45 SECONDS	55 SECONDS	60 SECONDS	60 SECONDS	60 SECONDS	5 GALLON 100-120 Secs.
FREE GAS produced when liquid is vaporized by heat of fire.	FREE GAS produced when liquid is vaporized by heat of fire.	FREE GAS produced when liquid is vaporized by heat of fire.	LIQUID Soda Solution	LIQUID Plain water	LIQUID calcium chloride solution.	LIQUID (plain water or calcium chloride solution.)
SMOTHERING	SMOTHERING	SMOTHERING	QUENCHING	QUENCHING	QUENCHING	QUENCHING
NO Cooling and quenching agents more effective on Class "A" fires because the fire is likely to be deep-seated. This type is effective on superficial Class "A" fires of small size particularly where the surrounding structure confines the gas to seat of the fire.	NO Cooling and quenching agents more effective on Class "A" fires because the fire is likely to be deep-seated. This type is effective on superficial Class "A" fires of small size particularly where the surrounding structure confines the gas to seat of the fire.	NO Other types are better adapted to Class "A" fires. This type good only under most favorable conditions because of difficulty of confining gas at seat of fire.	YES for use in places NOT involving oils, greases, etc., in any way. Must be kept in heated cabinet when installed in places subject to freezing temperatures.	YES for use in places NOT involving oils, greases, etc., in any way. Must be kept in heated cabinet when installed in places subject to freezing temperatures.	YES for use in places NOT involving oils, greases, etc., in any way. Does not require protection at temperatures down to 40 degrees F. below zero.	YES for use in places not involving oils, greases, etc. When Alcon crystals are used, does not require protection at temperatures down to 40 degrees F. below zero.
YES Underwriters' rating below indicates the relative effectiveness compared to other types. Small size and anti-freeze properties of this type are two of its valuable features.	YES Underwriters' rating below indicates the relative effectiveness compared to other types. Small size and anti-freeze properties of this type are two of its valuable features.	YES but foam type is better adapted to Class "B" fires. This type good only under most favorable conditions because of difficulty of confining gas at seat of fire.	NO because it has practically no blanketing effect.	NO because it has practically no blanketing effect.	NO because it has practically no blanketing effect.	NO because it has practically no blanketing effect.
NO	NO	NO	NO	NO	NO	NO
YES Because stream is a non-conductor. Satisfactory where fires have not spread beyond extinguishing capacity of extinguisher and especially in places where current is not likely to be turned off.	YES Because stream is a non-conductor. Satisfactory where fires have not spread beyond extinguishing capacity of extinguisher and especially in places where current is not likely to be turned off.	YES Because stream is a non-conductor. Satisfactory where fires have not spread beyond extinguishing capacity of extinguisher and especially in places where current is not likely to be turned off.	NO except where current is turned off. The stream is a conductor.	NO except where current is turned off. The stream is a conductor.	NO except where current is turned off. The stream is a conductor.	NO except where current is turned off. The stream is a conductor.
YES BEST AVAILABLE for Class "D" fires, because it has smothering effect and is not subject to freezing. On account of its size it can be used on pleasure automobiles.	YES BEST AVAILABLE for Class "D" fires, because it has smothering effect and is not subject to freezing. On account of its size it can be used on pleasure automobiles.	YES because it has a smothering effect and is not subject to freezing. On account of its size it cannot be used on pleasure automobiles.	NO has practically no blanketing effect—no splash-proof—subject to freezing. Not suitable for pleasure automobiles because of size.	NO not splash-proof—has no blanketing effect.	NO not splash-proof—has no blanketing effect.	NO because of size; not splash-proof; has no blanketing effect.
YES Because it has a smothering effect and is not subject to freezing.	YES because it has a smothering effect and is not subject to freezing.	YES because it has a smothering effect and is not subject to freezing.	NO not splash-proof—has no blanketing effect.	NO not splash-proof—has no blanketing effect.	NO not splash-proof—has no blanketing effect.	NO has no blanketing effect.
B2—C2	B2—C2	B2—C1	A1	A1	A1	A1 (either size)

have Underwriters' Label. * Splash-proof Foamite, for vehicle use. Does not have Underwriters' Label. Copyright 1953 by American LaFrance-Foamite Corp., Elmira, N. Y., U.S.A.

Characteristics Chart

man service, the connection of a water flow alarm to a central station system is desirable, but in some instances this service is not available. Direct connections to fire stations often can be established in communities not sufficiently large to warrant a privately-operated central station system.

Most warehouses generally are classed as ordinary hazard occupancy (Class II) in the standards for the design of automatic sprinkler equipment. Equipment which has been properly installed according to plans approved by the fire protection engineer still requires careful maintenance and intelligent supervision if it is to fulfill the expected need.

A structural item which will reduce the number of fused sprin-

klers and the amount of water discharged is the draft stop. The draft stop is a curtain board of noncombustible material installed under the roof to bank the heat rising from a fire, thereby concentrating it on the sprinklers in the immediate fire area. Conveyor openings, stairs and elevator shafts which cannot be enclosed completely can be partially protected by the use of curtain boards to a depth of at least one foot below the bottom of the joist or below the ceiling.

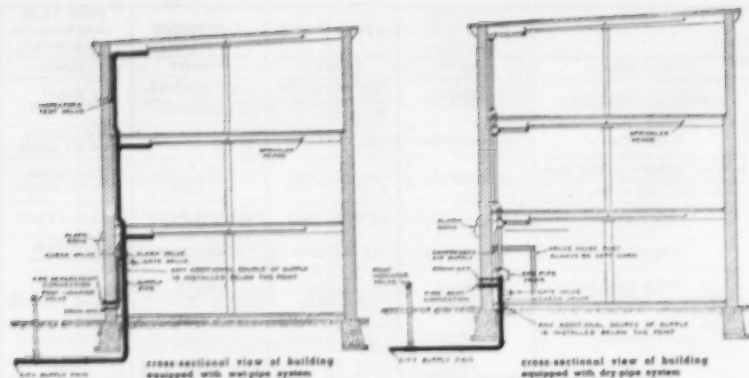
Of the 41 large loss warehouse fires that occurred last year, no sprinkler protection was provided in 36 of the warehouses. Sprinklers performed satisfactorily in one of the four having such protection although operation was delayed seriously by high piling

of stock and other factors. The other disastrous losses in the sprinklered warehouses illustrated the need of central station supervision of sprinklers.

Standpipe Systems

Standpipe systems provide effective and readily available hose streams in multi-story and large floor area buildings. These systems, which serve well in the control of more advanced fires, may contain water at all times or only after the operation of control valves. Many systems have no permanent water supply and are dependent on fire department pumps.

The connection of hand hose to automatic sprinkler piping for fire fighting purposes is permitted
(Please Turn Page)



The automatic sprinkler systems offered by Grinnell Co., Inc., can be supplemented by an inspection service and a central station supervisory service

... Defense

(Continued from Preceding Page)

with definite restrictions. Plans for such attachments should be reviewed with the authorities having jurisdiction. When outlets are equipped with hose to be used primarily by warehouse personnel, it is preferable to limit individual lengths to 50 ft. Effective handling and proper storage and maintenance of longer sections are difficult.

Had standpipes and hose been available, the losses from seven of the 41 warehouse fires which occurred last year probably would have been relatively insignificant.

Dry sand forms a very efficient means of extinguishing fires in

oils, varnish and other flammable fluids by smothering the flame. A proper supply should be maintained in places where such flammables are found.

Automatic Detection

The heat, flames and smoke from a fire are used to actuate many other types of automatic equipment in addition to sprinklers. The detection of fires can be accomplished by means of a fixed temperature device located in the area to be guarded, or by instruments which respond to a sudden rise in temperature. This equipment can be spotted in various locations or can be a continuous pattern over the entire area. It can be used to transmit an alarm, release a deluge of water,

flood the area with carbon dioxide gas, or shut down fans and blowers.

The smoke detector is based on the operation of a photo-electric cell. These also can be linked electrically to alarms or other equipment.

The flame detector is based on the sensitivity of the special electronic scanning cell to the modulated infra-red radiator emitted by the flame. The installation must be made with due consideration to the screening effect of the building contents.

The detection and alarm system can operate automatically to call the fire department and sound a local alarm.

Fire alarm boxes installed at convenient locations throughout the premises enable occupants of a building to turn in an alarm at any time from the immediate scene of the fire. A fire alarm lever sends the alarm through a central station to the fire department. The manual fire alarm service may be supplemented by a local alarm system to sound an alarm with the premises on bells, horns, etc.

Watchman Service

The need for a watchman in a warehouse is proportional to the values involved and the other types of protection available. Some operators permit employees to sleep on the premises. This

Left to Right: Safety First Products, dry chemical; M. L. Snyder, Inc., wet chemical; Elkhart Brass Mfg., foam; Gen-

eral Detroit Corp., vapo-liquid; and the Fyr-Fyter Co., dry chemical. Units carry Underwriters' Laboratories approval



usually introduces complications without accomplishing the desired result.

It is not only the management's responsibility that an able-bodied and mentally alert man be hired, but that he also be fully instructed and regularly supervised. The proper procedure for sounding an alarm and calling for immediate assistance must be pointed out. The watchman should be familiar with the basic principles of the fire protection equipment, and understand the operation of controls for automatic sprinklers, pumps, ventilating systems, and refrigerating equipment.

Supervision of watch service, whether by clock or central station, provides the watchman with a record of his activities and proof that he is aware of his responsibility.

Delayed Detection

With prompt detection a key to small losses, it is significant that detection was delayed in 32 of the 41 large loss warehouse fires that occurred in 1955. In 20, discovery was delayed because no watchman or automatic protection was provided. In 10, the watchman protection was substandard (no regular supervised rounds, toured outside the building only, etc.). The advantage gained by prompt discovery was lost in six fires because occupants chose to fight

the fire with first-aid equipment and did not give the alarm until the fire was beyond control.

Private Fire Brigade

The determining factor in saving property from fire is often the efficient use of manpower already on the premises.

The training of the private brigade should be planned in complete cooperation with public fire authorities and should include all phases of fire fighting from detection to salvage. Of major importance is the correct procedure for summoning help immediately from the public fire department. This information should be given to all employees.

In many large warehouses small trucks have been converted to fire trucks. They carry extinguishers, extension ladders, self-contained breathing apparatus, searchlights and fire axes, and can be driven to any section of the building.

Outside Protection

Frequently, the location and dimensions of a warehouse necessitate the installation of a private underground piping system and yard hydrant system to provide complete coverage on all sides of the structure. In considering the selection of hydrants and fire hose, the advice and cooperation of the public fire department and other authorities having juris-

diction should be requested, in order that the equipment be sufficiently standard to permit an interchange with public equipment when necessary.

Approximately five per cent of all the fires in warehouses have their origin outside the building, and consideration of any warehouse should include a study of the hazards surrounding. The degree of hazard is determined by the quantity of combustible material in the exposure, the susceptibility of the exposed structure to ignition, and the separating distance. These exposure factors have a definite influence on the insurance costs of both building and contents.

In general, it is preferable to concentrate on the protection from exposing fires through the use of such features as fire walls, protected openings, and outside sprinklers, keeping in mind the height, type of construction, proximity, and occupancy of all nearby structures.

Water Supplies

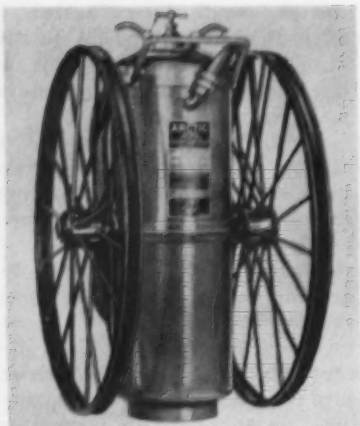
For purposes of approximation, the design of an automatic sprinkler system requires a water supply of at least 500 gal a minute with a pressure of 15 lb per sq in. at the level of the highest sprinkler.

Minimum supplies for standpipes for use by occupants of
(Please Turn Page)

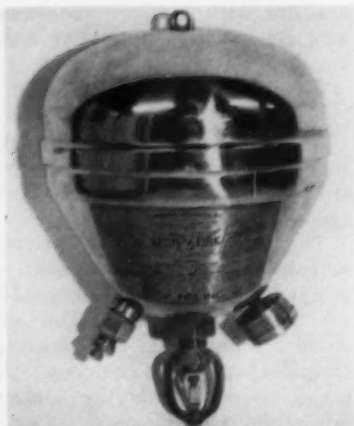
Left to Right: Elkhart Brass Mfg., water type; American-LaFrance Corp., dry chemical; Miller-Pecrless Mfg. Co.,

water or anti-freeze, pump type; Badger Co., water-filled type; and the Walter Kidde Co., dry chemical, trigger-type





Water is expelled some 60 ft by this American-LaFrance wheeled engine



Ceiling, sprinkler-type extinguisher by Stop-Fire, Inc., has one-gallon cap.

... Defense

Continued from Preceding Page

buildings as first-aid fire protection should be calculated to provide some 70 gal a minute with a pressure of 25 lb per sq in. at the highest hose outlet.

In deciding whether the public supply is sufficient or whether such auxiliary sources as a gravity tank, pressure tank, or fire pump with reservoir are required, the warehouse owner should obtain assistance from experienced and authorized sources. To insure an adequate supply of water, flow tests should be made periodically.

Extinguisher Classification

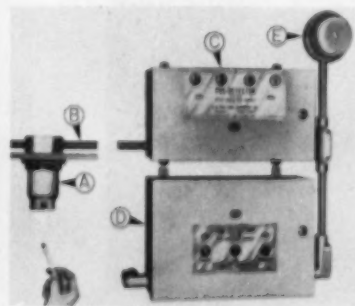
Based on the classification of fires and values determined, classifications have been established for hand-portable fire extinguishers. In the accompanying table the classification A-1 signifies that the appliances so classified are suitable for use on A fires and that one such appliance is required to make one unit of first-aid fire protection. The classification B-2 or C-2 signifies that the appliance so classified is suitable for use on Class B fires and Class C fires, and that two such appliances are required to make one unit of first-aid fire protection.

The numeral following the class is an indication of the size of fire which may be extinguished. For example, an extinguisher hav-

ing a rating of one unit of first-aid fire protection (B-1) is suitable for use on small fires, the numeral 2 or larger, indicates that the extinguisher is suitable for use only on very small fires. Where no numeral follows the letter indicating the class, the extinguisher is suitable for use on moderately sized fires. Multiple numbers of fire extinguishers rated lower in fire extinguishing effectiveness may not be the equivalent in effectiveness of a single higher rated extinguisher.

A unit has been established (as recommended by the National Fire Protection Association) for convenience in measuring the fire protection afforded by portable fire extinguishers. The unit is composed of from one to five hand portable fire extinguishers, depending upon the extinguishing value of the kind and size of appliances comprising the unit.

Pyrene-C-O-Two pre-detector system gives visual/audible alarms in seconds



The number of units of first-aid fire protection to be installed in a structure shall be determined by the fire insurance inspection bureau, or authority having jurisdiction. Where there are special hazards, in addition to the ordinary hazards of the occupancy, additional units of suitable type should be installed.

Occupancy Classification

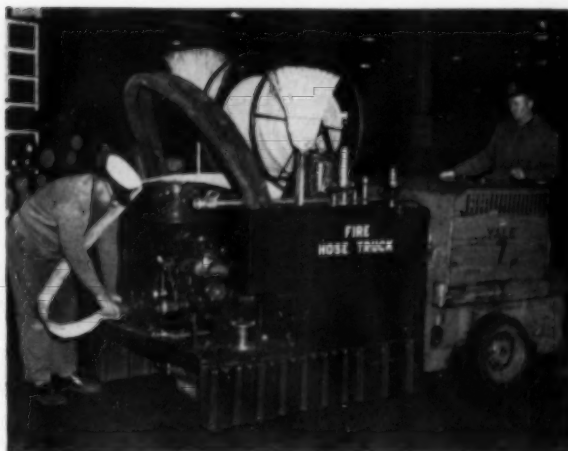
As a guide in determining the number of units which should be installed under various conditions, the following recommendations are given:

Class I: Light hazard occupancies, where, because of a relatively small amount of combustibles, incipient fires of minimum severity may be anticipated. (Extinguisher units shall be so located that a person will not have to travel more than 100 ft from any point to reach the nearest unit, but at least one unit shall be required for each 5,000 sq ft of floor area or fraction thereof.)

Class II: Ordinary combustible occupancies where incipient fires of average severity may be anticipated. (Extinguisher units shall be so located that a person will not have to travel more than 50 ft from any point to reach the nearest unit, but at least one unit shall be required for each 2,500 sq ft of floor area or fraction thereof.) This class may include occupancies such as warehouses, dry goods stores, miscellaneous manufacturing of average hazard, etc.

Class III: Extra hazardous occupancies, where, because of character or quantity of combustibles, extra severe incipient fires may be anticipated. (Extinguisher units shall be so located that a person will not have to travel more than 50 ft from any point to reach the nearest unit, plus additional units as directed by the authority having jurisdiction. At least one unit shall be required for each 2,500 sq ft of floor area or fraction thereof.) •

Editor's Note: In presenting this fire protection equipment review, DISTRIBUTION AGE gratefully acknowledges the cooperation extended by the following organizations: Fire Equipment Manufacturers' Association, Inc., Pittsburgh, Pa.; National Fire Protection Association, Boston, Mass.; National Board of Fire Underwriters, Chicago and New York; and the manufacturers of equipment pictured on these pages.



Above: Two skid loads of fire fighting equipment, located at a central point in the plant, provide immediate protection around-the-clock, are hauled by fork truck

Photographs courtesy of Thomas A. Edison, Inc.

Left: Fire hose truck shown here carries portable pumper with 250-gal-a-min capacity. Equipment truck carries oxygen masks, portable lights, axes, extinguishers, etc.

IN ADDITION to standard equipment shown on the preceding pages, many firms have adapted combinations of normal fire protection devices to build systems fitted to their own particular needs.

Such adaptations are common where plant lay-out, building construction, type of material stored or processed, etc., demand highly mobile protection systems of a variety of types.

To meet a problem of this nature, the Hartford, Conn., plant of Pratt & Whitney Co., Inc., devised a mobile fire fighting apparatus "on the skids."

Two compact loads of hose, extinguishers, and companion pieces are stacked on metal skids and kept ready for immediate action on an around-the-clock basis. The skid loads of equipment are transported from spot to spot by fork truck.

Fire Hose Truck

One of the two skidded fire stations is a pumper, capable of delivering under pressure up to 250 gal of water a minute. This skid, which is called a "Fire Hose Truck," is, in effect, a miniature fire engine.

The second skid brings complementary equipment to the trouble spots. It carries extinguishers, oxygen masks, portable lights, and even asbestos suits.

Fire Protection 'On the Skids'

Skid loads of fire fighting equipment hauled to the scene of the fire by fork trucks give on-the-spot protection on a full 24-hour basis

No definite fork truck assignments were made for the two skids. When an alarm sounds, the two trucks nearest to the skids, which are parked in designated areas, pick them up and speed them to the fire area. Once at the scene of the fire, the equipment is manned by a brigade of trained employees.

Expert Advice

Organizations planning to install mobile systems such as the one outlined above are advised to consult with their fire insurance company engineers. It is possible also to secure information from

the community fire department.

Expert opinion is needed on the type and capacity of pumper to be used, the type of auxiliary equipment needed to meet normal and special hazards, the number of mobile units needed, and the type of industrial truck advisable under local conditions. P&W was advised, for example, to use electric-powered trucks because of certain building restrictions.

Advice from the two agencies mentioned above, in addition to helping establish the most effective protection system, could conceivably help in the establishment of a lower fire insurance rate. •

By Clyde E. Phelps

*Executive Vice President
Associated Warehouse, Inc., Chicago, Ill.*

KEEPING pace with the age of automation, public warehousing has gone modern. Streamlined services provided by the industry are offered as the answer to today's complicated problems of physical distribution.

Many persons close to warehousing, in fact, claim that the progress and development of American industry in general are linked inseparably with the facilities and services offered by public warehousing.

Banks, as depositories of industry's funds and controllers of its credit, are compared with warehouses, which are the depositories of industry's manufactured goods and controllers of its distribution.

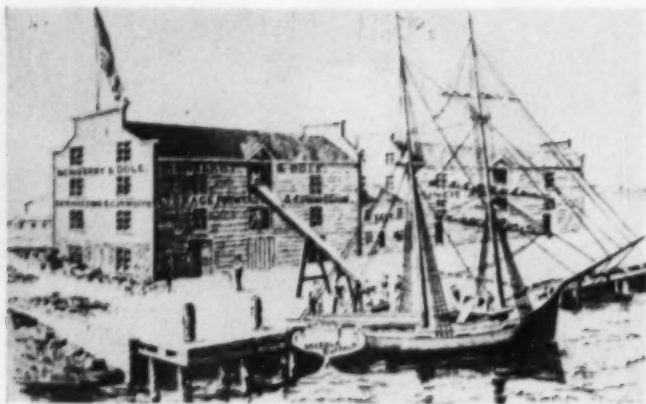
Distribution, of course, is the backbone of our entire industrial economy. There are numerous examples of the important part played by public warehousing in keeping the problems of distribution in line with those of production—in peace and in war.

Success of the Battles of the Bulge and Okinawa, as an illustration, depended upon the ability of public warehouses to load out hundreds of carloads of war materials to meet a 24-hour deadline.

Following the war, demobilization of military equipment was a serious threat to our economy. Millions of items, however, were stored in public warehouses and fed back into circulation on a graduated schedule.

Still later, over-production of civilian goods posed another threat. In this instance public warehouses absorbed millions of consumer items in over-production and held them off the market until supply and demand leveled off.

Cyclical changes in business—both production and prices—have been minimized by the cushion of public warehouse space. Just how this cushion operates can be understood best by a closer look at the public warehouse industry—its tools, techniques, facilities, and services.



Chicago warehouse receiving city's first grain shipment by boat in 1839

An Ancient Industry

Public warehousing is offered as the solution

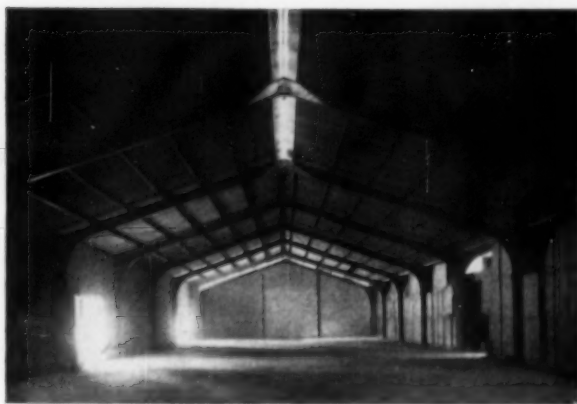


The trend in new warehouse construction has been to single-story buildings

Progress in warehouse construction over the past century has been phenomenal. In 1620 and 1626 outstanding structures such as the Old Triangular Warehouse, in Boston, and the Peter Minuet Building, in New York, were built. They were odd shaped and featured 7 to 8-ft ceiling heights. In 1839 the first warehouse was opened for business in Chicago. It was a wooden structure with a

100-lb floor load and a new device—the wooden chute for loading and unloading grain. Contrast these buildings with the modern, one-story warehouses of today, as shown above. Note the concrete buildings with 22-ft ceiling heights, 50-ft open spans, and unlimited floor loads.

New warehouse buildings constructed in the past 10 years have more than tripled warehouse ca-



Modern warehouse construction typified by 22-ft ceiling, and 50-ft spans



Special racks permit full use of cube space with palletized storage of odd lots

Goes Modern

to the complications of physical distribution



Separated shipping and receiving platforms expedite delivery of commodities

capacity in this country. Today's 50,000-sq ft building holds more merchandise than the old odd-shaped structures containing 200,000 sq ft.

Modern Handling Methods

The contrast in the development of materials handling methods is even greater, and progress in this field has taken place over a much shorter span of time. The

important changes have taken place in the past two decades. In 1939 the first fork-lift truck was introduced into warehouse handling procedures. Since then every conceivable type of materials handling machine has been designed for the warehouse industry.

Only 20 years ago it took two men 15 minutes to move one refrigerator into stock. It took a full

Fork-lift trucks and palletization permit five high stacking in warehouse



day to unload one carload of refrigerators with a crew of four men. Today one man using a fork truck can unload three refrigerators in five minutes, and a full carload in less than two and one-half hours. Other mechanical devices, such as special paper grab trucks and side grab forks, provide faster and safer materials handling than ever before.

Systemized Order Processing

Electronic office procedures have developed in an even shorter period of time. It has been within the past five years that electronic procedures and systemized order processing has been achieved to

(Please Turn Page)



Top: Warehouse clerical worker using Flexowriter to punch five-channel tape for use in integrated data processing

Bottom: Modern public warehouse office is geared to handle paperwork processing speedily for the firm and its customers

Ancient Industry Goes . . .

(Continued from Preceding Page)

any great degree in public warehouses.

New order processing developments include versatile accounting and billing machines that produce three to five paper operations in one typing, cardotype and tape recorders, and electronic computers and punch card systems.

Specialized Services

Special services rendered by warehouses are many and varied. In addition to providing space to deposit goods in safe-keeping, a public warehouse can perform all of the branch warehouse services that a manufacturer does in his own plant. A public warehouse carefully palletizes and stores merchandise in space that meets the particular requirements of the commodity. Protection from heat,

cold, dampness, sunlight, foreign odors, and vermin all are a routine part of a general storage operation.

Some commodities require specialized and regulated temperature and humidity control. Others require special handling, and storing techniques. These factors all are a part of the specialized services provided by a modern warehouse.

Customer Representation

Accurate inventories are maintained on a daily, weekly, or monthly basis. Orders are processed, shipping papers, bills of lading, and special documents, such as sight drafts of COD shipments, are handled in a routine manner on a small per unit cost basis. Often warehouses act as direct shippers and agents—fill-

ing orders received from customers, checking credited customer lists and, in some instances, invoicing on the customer's own invoices.

Experienced traffic departments in public warehouses expedite the shipments on a daily delivery basis. They select the fastest and most economical routings between points, and following through to see that the merchandise is delivered over night within a radius of 350 miles.

Fast Deliveries

Modern warehouses, with electronic office equipment and communications installations, enable a manufacturer with just one office and plant to assure his customers anywhere in the United States of a 24-hour delivery schedule.

Many small and medium-size manufacturers have doubled and tripled their sales volume in a matter of a few years by using the public warehouse network as an integral part of their distribution system.

Storage-in-Transit

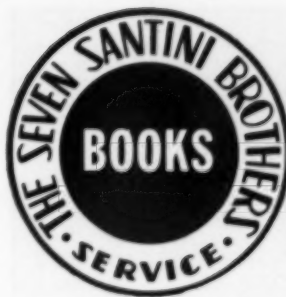
A boon to industry and public warehouses during the past 10 years has been the trend toward storage-in-transit operations, in key distribution centers, of mass produced goods. Briefly this type of storage enables a manufacturer to store 50, 100, or 1,000 carloads of freight at given transit points for a period of up to two years.

When the manufacturer ships to final destination he can move in many directions beyond the transit point and take advantage of through freight rates.

Branch Office & Display Space

Warehouses can, and do, provide modern offices and display space for manufacturers and sales representatives. In many instances, new warehouse buildings will provide one or two large sections of air conditioned offices and display rooms specifically constructed for out-of-town customers. Many manufacturers have built a nationwide sales force and doubled and tripled sales through a branch network of offices, dis-

(Please Turn to Page 91)



Slap-Stick Labels Make Packing a Snap

Self-sticking labels, supplied the customer in sheets of 12, are used for quick identification of household items—cut packing and unpacking time, loss and damage

TO THE household goods warehouseman and his customer, package identification, or lack thereof, has a long history of nuisance.

A large load of improperly marked or unmarked household effects makes for a costly and time consuming unpacking job at the load destination. The customer, usually in a rather high-pitched state of excitement during the move, is ill-equipped to cope with short-memoried drivers and helpers.

Out-of-Storage

The problem seems to be magnified many times when the load comes out of storage—and the longer it has been warehoused the more perplexing it becomes. Even if the original crew handles the second stage of the move, they cannot be expected to remember the details of a packing job completed years, months, or even weeks ago. More often than not, a completely different crew is as-

signed the final move out of storage.

Most movers have designed their own systems and devices to solve the problem of goods identification, and many of them have proved highly satisfactory. Now, Santini Bros., Inc., of New York, has come up with a new idea called "Slap-Stick Labels."

Self-Sticking

The bright red labels, designed for quick identification, are self-sticking. They are provided in sheets of 12 on oil paper. The customer simply peels the label off the sheet and applies it, without moistening, directly to the package.

The labels are suitable for use on barrels, boxes, cartons, bags, wardrobes, cans, etc. Ten different types of goods are identified on each sheet of 12 labels. There are three for china, and one each for glass, pots, lamps, lamp shades, baby, books, food, drapes-linen, and fragile.

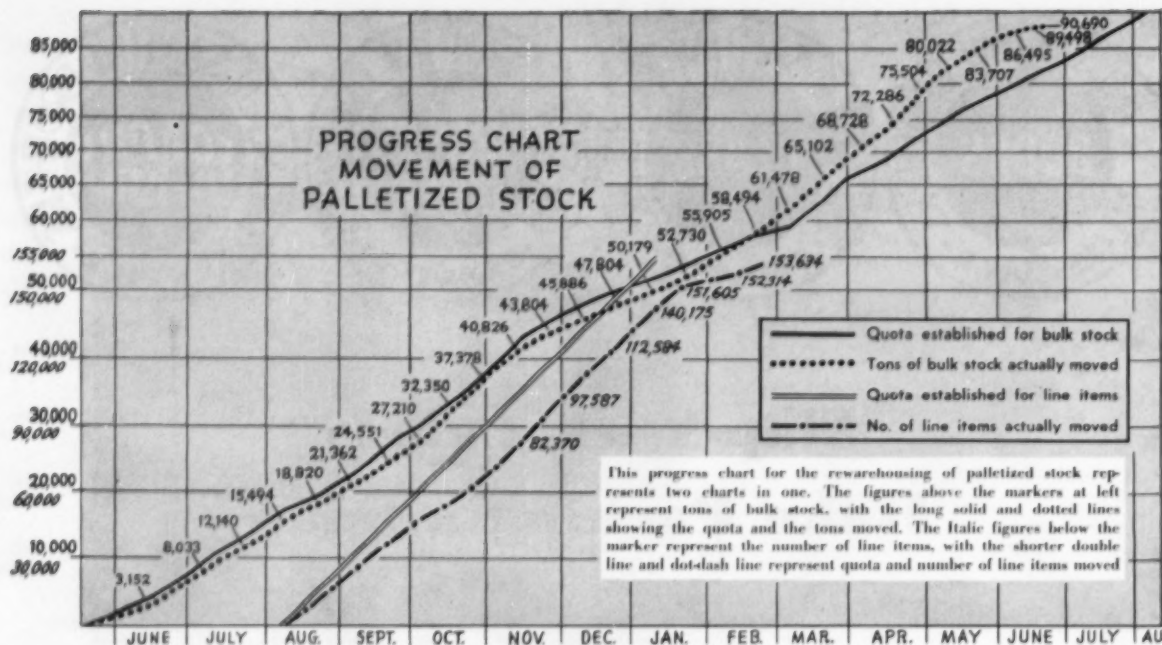
In addition to facilitating the

unpacking jobs, the labels are helpful in identifying goods for special handling care and storage techniques. This, the Seven Brothers report, cuts down on loss and damage claims and reduces pilferage.

Fringe Benefit

The labels also offer a fringe benefit in the form of a promotion piece or good-will builder. They are offered to the customer as a "free gift," with a verbal reminder that the labels "are typical of the many extras in service offered by the moving firm."

Although the labels in this instance are used strictly for identification of household goods, the same principle can be applied to the storage and warehousing of other types of merchandise. The system is particularly helpful where the goods stored consists of a number of different items packed in a variety of container sizes and types. •



Problems of Relocation

Solved by Preplanning

Typical page from the lengthy "Movement of Bin Stock Study," giving step-by-step moves

STANDARD OPERATING PROCEDURE		PROCEDURE FOR RELOCATING FACILITY NO.
STEP NO.	OPERATION REQUIRED OR ACTION TAKEN	DATE PROCEDURE APPROVED
1	Let's, Description of Facilities Office.	
2	Inserts four (4) Bin Movement Cards in Envelopes (provided by the Government)	OFFICE OF THE MOVEMENT COORDINATOR
3	Delivers Bin Movement Cards to Contractor Personnel in accordance with the SOP and coordinated schedule with Storage Specialist, Description of Facilities Office.	OFFICE OF THE MOVEMENT COORDINATOR
4	Locates the Bin from information on Bin Movement Card, by comparing Bin label and stock in Bin Opening with information on Bin Movement Card.	Contractor Personnel
5	NOTE: If there is an obvious dissimilarity between Bin Movement Card and stock, this discrepancy will be reported to the government employee in charge who will insure that the discrepancy is resolved prior to movement of the stock.	
6	If there is no stock in the Bin Opening, the employee of four (4) Bin Movement Cards will be given to the Warehouse Bin Section Storage Representative.	Warehouse Personnel
7	NOTE: Action to be taken by the Storage Representative now indicated in "Procedure for Action Taken When Bin Opening is Warehouse Bin Section Storage Representative." See 12-2.	
8	Inserts the stock from the Bin Opening, if there is no dissimilarity between Bin Movement Card and stock, and places in Movement Container (Furnished by the Government).	Contractor Personnel
9	RELOCATE BIN	APPROVED BY

The problems of industry relocation are best

OF THE many physical distribution problems faced by modern industry, none seem so formidable as the problem of plant relocation.

In many instances the problem of rewarehousing alone is enough to discourage even the most ambitious of management personnel. In most instances this phase of relocation involves the unstacking or unbining, moving, and restacking or rebining of thousands of separate items. Often, before much of the goods can be restacked or rebinned, it must be reboxed, repalletized, or retreated.

In addition to these normal problems, many types

CUBING INSTRUCTIONS

SINGLE-SINGLE ROW OR MULTIPLE ITEM SINGLE STACKS

Width Aisle

Length

Pallet or Material
First Stack

Center Line

Always 42"

Pallet or Material

AISLE
Beginning of Row

→ | 1" | ←

When this distance exceeds 6 inches a new start in measurement will be made as shown in First Stack

NOTE: Height of each stack is determined by top of highest container. Arrows indicate space to be measured.

This preplanning and pin-point scheduling were credited with the success of a king-sized rewarehousing project completed recently for the military by our firm. This particular project was part of a Reorganization of Facilities Movement planned by the Engineer Supply Section, Columbus General Depot, Columbus, O.

The contract called for the repalletization and rewarehousing of approximately 91,000 tons of bulk stock, the moving and rebinning of 155,000 line items of bin stock, and the moving and reconnecting of 500 pieces of machinery and equipment.

In addition to the basic problems presented by a move of this magnitude, the government required that all work be accomplished without interrupting the normal work schedule of military

925111726		BOLT		EA		O133RQ3141361516	
MANUFACTURE PART NUMBER		DESCRIPTION		UNIT WEIGHT		UNIT CASE	
SPARE PART		HISTORY CARD				200000	
UNIT CASE	UNIT WEIGHT	UNIT CASE	UNIT WEIGHT	UNIT CASE	UNIT WEIGHT	UNIT CASE	UNIT WEIGHT
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9
10	10	10	10	10	10	10	10
11	11	11	11	11	11	11	11
12	12	12	12	12	12	12	12
13	13	13	13	13	13	13	13
14	14	14	14	14	14	14	14
15	15	15	15	15	15	15	15
16	16	16	16	16	16	16	16
17	17	17	17	17	17	17	17
18	18	18	18	18	18	18	18
19	19	19	19	19	19	19	19
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24	24	24	24	24	24	24	24
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26	26	26	26	26	26	26	26
27	27	27	27	27	27	27	27
28	28	28	28	28	28	28	28
29	29	29	29	29	29	29	29
30	30	30	30	30	30	30	30
31	31	31	31	31	31	31	31
32	32	32	32	32	32	32	32
33	33	33	33	33	33	33	33
34	34	34	34	34	34	34	34
35	35	35	35	35	35	35	35
36	36	36	36	36	36	36	36
37	37	37	37	37	37	37	37
38	38	38	38	38	38	38	38
39	39	39	39	39	39	39	39
40	40	40	40	40	40	40	40
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42	42	42	42	42	42	42	42
43	43	43	43	43	43	43	43
44	44	44	44	44	44	44	44
45	45	45	45	45	45	45	45
46	46	46	46	46	46	46	46
47	47	47	47	47	47	47	47
48	48	48	48	48	48	48	48
49	49	49	49	49	49	49	49
50	50	50	50	50	50	50	50
51	51	51	51	51	51	51	51
52	52	52	52	52	52	52	52
53	53	53	53	53	53	53	53
54	54	54	54	54	54	54	54
55	55	55	55	55	55	55	55

Lower: Spare parts history cards, for each item were processed automatically

of merchandise—because they are highly perishable, flammable, malodorous, or especially fragile—require special care in moving. In such instances, considerations of humidity control, special handling equipment, floor load, sequence of movement, etc., must be given careful study.

and its furniture and equipment. This phase of relocation requires still another approach, because of the variety of items involved—from water coolers to business records, and pencils to paper cups.

53

[illegible]

Daily history of the project was kept by use of Record of Contract Service forms

Problems of Relocation . . .

(Continued from Preceding Page)

and civilian personnel employed on the base.

Preparatory Study

For some relocation projects the preparatory study may take as little as several weeks. It is more common, however, for such studies to run to several months, or even several years. Governing factors include amount of material to be moved, daily in-and-out movement, type of goods to be moved, amount of repalletizing, reboxing, and re-treating needed, etc.

On the Columbus project, advance study and preplanning were conducted for several years before the first physical move was made. Personnel from our firm visited Columbus a year before the move was scheduled to get under-

way, and worked closely with Depot materials handling specialists in blueprinting the entire job.

Even before our men entered the picture, the Corps of Engineers conducted an extensive study of all factors involved. One of the initial projects was a Bin Efficiency Study, which was completed more than a year before the move was started. This study explored in great detail every imaginable phase of bin storage. It covered:

1. The stockpicker, including his average height, weight, and other physical specifications;
2. The stock, including nature of the stock to be stored and location level of all stock;
3. Bin numbering systems;
4. Physical lay-out of the bin section;

Progress chart was maintained in contractor's office by use of weekly report

TONNAGE REPORT - COLUMBUS PROJECT - FOR THE PERIOD _____						
DATE	"A" SHIFT		"B" SHIFT		DAILY TOTAL	WEEKLY TOTAL
	REGULAR	EXCESS	REGULAR	EXCESS		
MON						
TU						
W						
TH						
F						
SA						
SU						
TOTAL						XXXX
MON						
TU						

5. Traffic control and congestion:

6. Physical data on the proposed bin section, including the depth of bins, number of rows, tiers per row, total opening, size of opening, aisle widths, height.

Results of the bin study were condensed into a 33-page booklet and distributed to all involved personnel.

The bin study was followed by two separate, and more lengthy, reports—one on the Movement of Bulk Stocks and the other on the Movement of Bin Stocks.

The Bulk Stocks study was broken down into three sections, one on Preparation of Rewarehousing, another on Rewarehousing, and the third on General Instructions. Each section gave complete instructions on all phases of the move, from initial paperwork to final disposition of the goods.

The initial or Preparation section, for example, listed 73 steps to be followed, in sequence, in preparing for the move. Each step was explained in detail, providing instructions for the Reorganization Office, the Storage Division, the Clerical Unit, the Drafting Unit, the Administrative Office, and the contractor.

Accompanying the 73 steps was a flow chart by organizational segment. This included charts, diagrams, samples of forms and cards to be used, etc. Sections II and III, on Rewarehousing and General Instructions, went into the same minute detail.

Bin Stocks

The Movement of Bin Stocks report, even more weighty than its Bulk Stocks counterpart, contained complete instructions on each of the following:

1. Preparation for movement of bin stocks;
2. Labeling of bin tiers;
3. Procedure for location survey of warehouse bin sections;
4. Procedures for movement of bin stocks;
5. Payment for movement of bin stocks;
6. Relocating items too large for bin openings;

(Please Turn to Page 92)

THIS year, as every year, rats and other rodents will cause more than \$2.5 billion in damage to stored goods. Operating singly, in families, and often in groups of 100 or more, rats annually visit so much destruction upon stored goods that the losses are a serious factor affecting physical distribution costs.

Happily, however, development of effective new rodenticides have armed private and public warehouse operators with a potent weapon against rodent destruction.

Skillful use of warfarin and similar agents usually can diminish the rodent population of large areas. Cost analyses have proved the price of rodent control programs negligible. Usually a combination of rodent control measures is necessary.

Perimeter Control

A "perimeter control" program conducted by a large Midwestern milling company utilizes a three-point approach to the program. The firm uses rodenticides, traps and rodent-proofing material on its buildings. Rodent control is practiced not only in the buildings but throughout the area between the company's property limits and the exterior of the plant buildings. The program has eliminated virtually all rodents.

Warfarin, prepared in both solid and liquid baits, is placed in permanent wooden bait sections 24 in. long, 12 in. deep, and 12 in. wide. A hole $2\frac{1}{2}$ in. in diameter in one end permits rats to enter the box. The boxes are kept locked.

Secured by stakes driven into the ground, most of the stations are placed on the plant's exterior where rodents are known to migrate from adjacent areas. In this way a minimum of rats actually reach the plant buildings. A designated employee visits the bait stations once a week, examining their condition and replenishing bait when needed.

Solid bait used in the stations is produced from a specially prepared formula consisting of $\frac{1}{2}$ lb

The War Against Rats

How to Save \$2.5 Billion Annually

Rodent damage in this country totals \$2.5 billion a year, but rodenticides and control programs may be leading to a rat-free future

of warfarin concentrate, $2\frac{1}{2}$ lbs of rolled oats, $4\frac{1}{2}$ lbs of freshly ground cornmeal, 2 lbs of cake doughnut flour, $\frac{1}{2}$ lb of confection's sugar, and $\frac{1}{2}$ pt of corn oil.

Records are maintained of the number of boxes, dates each box was visited, rodent activity in the vicinity of the boxes, number of exterior and interior traps set, number of rodents caught in the traps, and the quantity of rodent-damaged merchandise in the plant.

Traps are placed at strategic points on rodent runways on the inside of doors. They are kept set constantly. Buildings are inspected often for holes, crevices, and other areas through which rodents might gain entrance.

A large chocolate corporation uses a three-part punch composed of warfarin, pival and antu

for rodent control in its warehouses and other buildings. The pival and warfarin, usually mixed with bran, are used in $2\frac{1}{2}$ -lb quantities. One part of rodenticide is used to 16 parts of bran.

This bait also is placed near rat burrows, hiding places, granaries, wood piles, and trash heaps. Antu is used occasionally to supplement the pival and warfarin. Rat burrows are dusted occasionally with cyanogas dust. As many as 65 rats have been counted in a single kill resulting from one of these treatments.

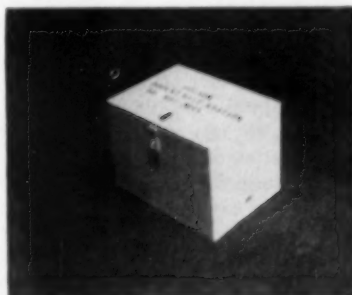
The importance of adequate rodent control was recognized by the City of Baltimore, which, in 1947, established a Division of Rodent Control in its Health Department. The Rodent Control branch has adopted a program containing four objectives:

1. Elimination of all sources of rat food;
2. Elimination of harborages;
3. Rat-proofing of buildings;
4. Rat eradication.

Emphasis is placed on controlling the environmental factors which make it possible for rats to exist. The program entails a premise-to-premise survey to determine the location and degree of infestation and the contributing causes.

The survey is followed by no-
(Please Turn to Page 88)

Box traps strategically placed and baited carefully are effective if tended properly



1. Do you require				
a. Negotiable warehouse receipt_____				
b. Non-negotiable warehouse receipt_____				
c. Inside storage_____				
d. Outside storage_____				
2. Do you require				
a. Prepayment of shipments_____				
b. Collection of C.O.D.'s_____				
3. Will warehouse be required to keep dealer credit records_____				
4. Do you require a monthly				
a. Physical inventory_____				
b. List of each shipment listing consignee and merchandise shipped_____				
5. Will you furnish				
	MADE OUT	PARTIALLY MADE OUT	BLANK	HOW MANY COPIES
a. Bills of lading_____	_____	_____	_____	_____
b. Sight drafts_____	_____	_____	_____	_____
c. Invoices_____	_____	_____	_____	_____
d. Labels or stencils_____	_____	_____	_____	_____
e. Packing Lists_____	_____	_____	_____	_____
6. Must first items in be first out_____				
7. Must goods be stored by				
a. Serial number_____				
b. Weight_____				
8. Must serial number or weight be reported with each shipment_____				
9. Are IBM tags used_____				
10. Will goods be withdrawn by serial number_____				
11. Will warehouse be required to break bulk_____				
12. Total square feet required during year based on present storage				
a. Minimum low_____				
b. Maximum high_____				
13. Will local delivery be required_____				
14. Will goods arrive by - and how many during year:				
a. Carload_____				
b. Poolcar_____				
c. Truckload_____				
15. Will goods be shipped from warehouse in:				
a. Carloads_____				
b. Poolcars_____				
c. D.F. cars_____				
d. L.C.L._____				
e. Is new dunnage required_____				
f. If so, will you supply it_____				
g. Do you wish us to salvage and re-use your dunnage_____				
16. Do you have a factory representative on the West Coast_____				
17. What special services do you require_____				
18. Remarks_____				

BENDER WAREHOUSE COMPANY
P.O. Box 1108
Reno, Nevada

size in three dimensions, gross weight, wholesale valuation, stacking height limit, quantity per carload, and fastest moving items.

The quantity to be stored is requested in six two-month columns. Special storage considerations are noted in a section that asks are the goods to be isolated, are they hazardous, are they perishable, and are they subject to heat damage.

Services Required

The back half of the form lists 17 multi-part questions on services required and additional storage conditions. Properly filled out, this section tells the warehouseman whether the client requires negotiable or non-negotiable receipts, prepayment of shipments, collection of COD's, maintenance of dealer credit records, monthly physical inventory, monthly shipping lists on each consignment, or outside storage.

One five part question asks whether the client will furnish bills of lading, sight drafts, invoices, labels or stencils, and packing lists? For each of these forms there is space to note whether they will be made out by the client, partially made out, or blank—and how many copies of each will be supplied.

The completed questionnaire tells the warehouseman also whether or not he will be required to break bulk, whether he must store on a first-in-first-out basis, whether the goods must be stored by serial number or weight, whether or not local delivery will be required, and total square feet required for the year.

Shipping & Receiving

Questions on shipping and receiving ask will the goods arrive by carload, poolcar, or truckload; will they be shipped by carload, poolcar, DF cars, or lcl, will new dunnage be required, and should dunnage be salvaged?

Additional space is provided on the form for notation of special services required, or other special conditions. •

accuracies on good-will can be ruinous.

A number of public warehousemen have devised their own particular tools for extracting more pertinent data from reluctant industrial traffic managers—data that are necessary for the preparation of good estimates.

One of the more successful of such tools is one being used by the Bender Warehouse Co., of Reno, Nev. When a traffic manager seeking an estimate from

Bender fails to include the needed information, immediately he is forwarded a printed questionnaire.

Physical Description

The front half of the form is arranged in tabular style, and provides space for a complete physical description of the goods and of the storage conditions involved.

It lists product and freight classification, type of container,

Metals Warehouses Offer



In addition to their basic functions as distributors,

METALS warehouses have been undergoing operational changes in keeping with the times. Today, in addition to their basic services as distributors of ferrous and non-ferrous metals, some offer services midway between mill functions and public warehouses. The newer services reflect industry's increasingly varied needs, closer tolerances of automated production, and the high volumes demanded of the metals producers.

Many products use metals in several thicknesses, widths and hardness. Often, the respective quantities needed are relatively small. For the mills to produce these metals economically, they have to concentrate on large orders and standard specifications as to gage, tolerance and hardness. As a result, they will delay delivery to the metal products manufacturers until they can group enough of the small orders to make a large run.

This, of course, means delay to the manufacturer, and such orders must be placed well in advance of need. If the specifications are unique or require tolerances too close for mill production, the mills may be reluctant to handle them. This is where the modern metals warehouse is stepping in with special services. They take metals of nearest standard specifications and add the needed special characteristics.

An example of a metals warehouse supplying these custom services is Eastern Brass &



This 48-in. slitting machine makes up to 36 cuts in one operation

Home developed coil grapple resulted in 50 per cent space saving

Copper Co., operating in the New York City area. In addition to such standard services as shearing, slitting and cutting, it offers its customers rolling and annealing to close tolerances. Also, it makes arrangements with its customers to store their own metals until needed.

The custom services are predicated upon the warehouse's carrying adequate stocks of certain standard specifications. The manufacturer buys the needed metal in base widths and standard quantities. He buys either from Eastern or from a mill source. The metal is stored at Eastern's warehouse and released for processing upon demand. When

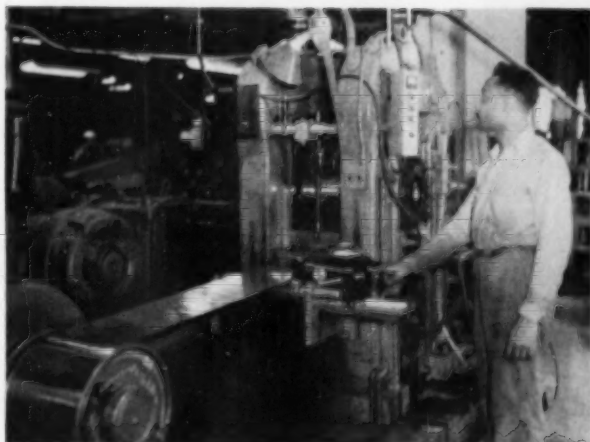


needed, Eastern processes it to the manufacturer's specifications and delivers it; often within 48 hours, depending on the amount of processing required.

The advantages to the manufacturer are:

Custom Services

metals warehouses offer services midway between mill functions and public warehouses



Four-high rolling mill with electronic system gives extremely fine tolerance



Wide aisles permit maneuverability of fork trucks, which supplement cranes



Overhead cranes, operating on a quarter-mile track, are accessible to all bays

1. Substantial savings by buying in base mill widths and sizes.

2. Protection against inventory losses, if the material becomes obsolete because of changes in specifications, product redesign or cancelled contracts.

3. Reduction in inventory and handling costs.

4. Faster delivery of material.

5. Adequate stocks. Sufficient quantities always are on hand.

6. Financial reserve. Loans can be more easily negotiated on standard stocks.

7. Storage in the warehouse enables manufacturer's storage space to be used for production.

Eastern has a flexible arrangement for time limits on inventory stored in its warehouse. Adjustment is made for stock withdrawal. Storage charges after the processing period are at a predetermined rate. The charges for processing usually are more than offset by the other savings.

A major manufacturer of TV antennas had been making seven different parts from one gage of aluminum. Two parts were made from another gage. All required closer than normal mill width tolerance. All material was being purchased in less than the mill's base quantities.

Bulk Purchase

The manufacturer grouped the poundage needed in each gage, and bought the metal in base quantity and width. This resulted in a big savings in material, since the company uses about 80,000 lb a month. It is stored at Eastern and slit as required in needed poundage with desired tolerances.

(Please Turn to Page 94)



New concrete grain silo system in Sweden was built on an old river bed. Iron pilings support foundation. System has 15,000-metric ton capacity

A Look at European Bulk Storage

By John Grindrod
DA European Correspondent

The principles of automation are being applied with great success to storage and distribution of bulk and granular commodities, both here and abroad. Making their way into the field are such things as electronic control, conveyerization, etc.

STORAGE and distribution of bulk materials, both in this country and abroad, has advanced in recent years through adaptation of various principles of automation.

New types of construction, modern containers, mechanized equipment, electronic control, and other new tools and techniques are expediting the warehousing and shipment of bulk and granular commodities. Briefly outlined below are three new bulk storage installations in Europe.

Swedish Grain Silo

A new storage silo system having a total capacity of 15,000 metric tons of wheat has been completed at the Central Swedish port of Norrköping. It comprises 18 silos, each 24 metres high and holding about 800 metric tons, a basement storey, cleaning plant, driers, etc. The entire plant is highly automatized. Every function is electronically controlled from a central panel.

The concrete plant is 37 metres high and incorporates nine floors, including the basement. Also included in the storage facilities is an accommodation for 5,000 tons of cattle feeding stuffs and fertilisers. The fertiliser store is provided with doors which close automatically at a given temperature.

The drying plant consists of three drying installations. Each, made completely of iron and built in ½-metre high standing sections, dries 24 tons of wheat per hour at an evaporation corresponding to 4½ per cent of the feed weight of the grain.

With the grain traveling by gravity in downward direction against a counterflow air stream, each drier consists of an upper feeding zone, upper and lower drying zones, a cooling zone and a discharge zone. In the drying zones the grain passes over and between air channels which are connected with fans.

Through some of the ducts warm air is forced into the humid grain, while through others the air, humidified by the grain, is

carried away. The air channels, arranged in layers, are open alternately at the intake and at the outlet ends.

At the bottom of the drier, the grain is discharged by means of rollers. They release the grain over an adjustable discharge table. The rollers are turned intermittently by a variable ratchet-wheel mechanism, driven by a motor provided with an eccentric.

The conveying capacity for off-loading grain into the silo is 180 tons an hour—split into three off-loading points each of 60 tons an hour. In addition there is a pneumatic conveying installation with a capacity of 50 tons an hour for direct discharge from ships. For the loading of ships from the silo there is a conveyor system with a capacity of 120 tons an hour.

British Sugar Silo

With a total capacity of 15,000 tons, two new prestressed concrete white sugar storage silos have been constructed at Poppleton, near York, England, for the British Sugar Corp.

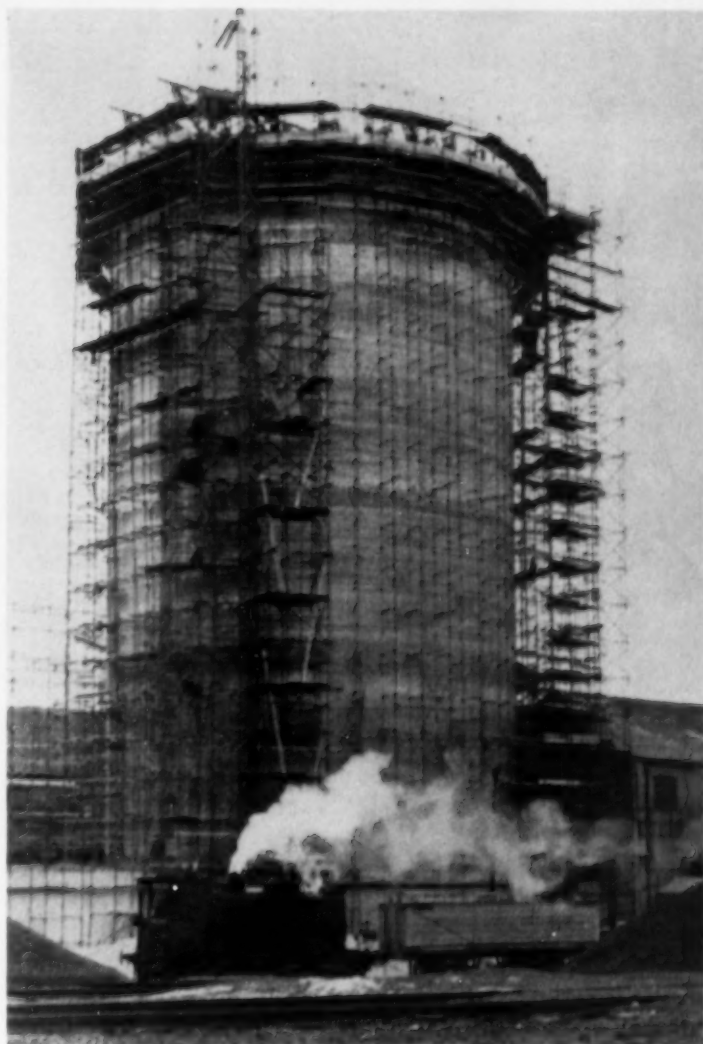
Hitherto, sugar always has been stored in 1-cwt or 2-cwt bags piled high in warehouses. However, demand for prepacked goods of all types has placed emphasis on methods of bulk handling. The new silos make it possible for the sugar to be bagged or put into packets as required.

The two new silo structures are 66 ft in diameter and have an overall height of 120 ft. The silos proper are 100 ft high from floor to roof. Each floor is pierced by 94 holes for the discharge of the sugar. They are mounted on 9-ft, 6-in. high columns to provide a basement for the conveyor machinery for emptying the silos.

A 13-ft wide by 18-ft high conveyor bridge for filling the silos runs across the roof of the two silos. A 13-ft square elevator tower 145 ft high was constructed at one end of the axis of the silos.

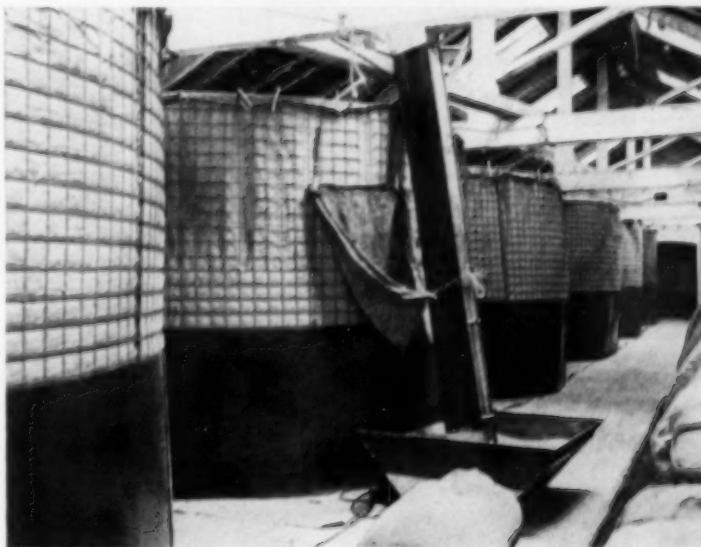
The structure is built of concrete, except for the roofs and conveyor bridge, which are in

(Please Turn to Page 90)



Prestressed concrete storage silos are used in England for white sugar

Portable silos can be used for inside or outside storage of bulk material



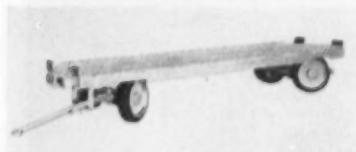


PRODUCTS

... FOR FURTHER INFORMATION

8,000-Lb Industrial Trailer

The Yale & Towne Manufacturing Co. has developed a new standard 8,000-lb capacity industrial trailer which gives the advantages of longer length with resultant increased carrying area and an improved trailer hitch. The new trailer has a one-piece checkered steel plate carrying platform of 128 in. in length and an overall length of 135% in. It is available



in platform widths of 38 in. and 48 in. Yale's new trailer hitch is a simplified device which is connected or disconnected on either end of the trailer by the removal of a single pin. The new model has four wheel steer.

Circle 30 on Card Facing Page 69

Plastic Nailing Machine

A plastic, heavy duty nailing machine, capable of driving 1½-in., 16-gauge staples into the hardest woods, has been announced by Spotnails, Inc.

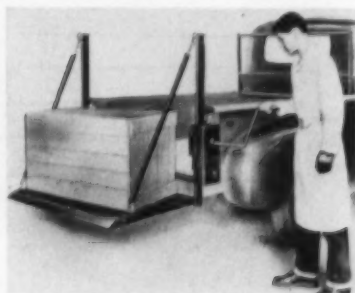


The new Model B Spotnailer is a light-weight, magazine-fed machine designed for the longer, heavier fastening operations in woodworking, such as bedding box frames, plywood paneling, pallets, crating, etc.

Circle 31 on Card Facing Page 69

Elevating Tailgate

Mid West Body & Manufacturing has announced a new Jiffy-Lift elevating tailgate for pick-up and express truck bodies. The Jiffy-Lift is a completely packaged kit, ready to install in less than two hours. Each unit is assembled completely so that anyone can attach it simply by using

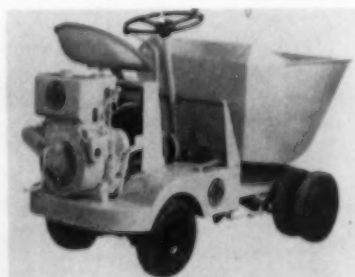


six bolts. The complete unit weight is 175 lb. It is an all-steel, ramp-type elevating tailgate having a capacity of 600 lb.

Circle 32 on Card Facing Page 69

Power Flow Transmission

Performance improvements have been announced for the Model R-15 Moto-Bug in all-around material handling work. The introduction of a



relatively simple automatic power flow transmission as standard equipment is said to provide an increase in speed, power, operating ease and production capacity. Adoption of the new transmission has been announced by the Kwik-Mix Co. A simple directional lever regulates either forward or reverse travel. Speed on the Moto-Bug with automatic power transmission has been increased to 12 mph.

Circle 33 on Card Facing Page 69

Four-Wheel Drive

Four-wheel-drive trucks that send driving power to their front wheels with the flick of a single shift lever have joined GMC Truck and Coach



Division's full line of trucks. Six basic models, including pick-ups, panels, suburban station wagons, and stake trucks in the half-through one-ton weight range, have four-wheel drive as regular factory-installed production options. They are available with 130-hp, 270-cu in. V-8's, and either four-speed manual or Hydra-Matic transmissions.

Circle 34 on Card Facing Page 69

The Mover's Helper

A new Handi-Pak corrugated container has been developed by Chipewa Paper Products. When a mover has packed up everything and is ready to roll, he hands the lady of the house a Handi-Pak and says: "After your last-minute check, you'll find you may have forgotten a few small items—a pair of shoes, a medicine bottle, a can



opener, anything. To help you with those items, please accept this Handi-Pak, with our compliments." Handi-Pak is available in plain kraft . . . or in the mover's standard color with or without insignia and firm name.

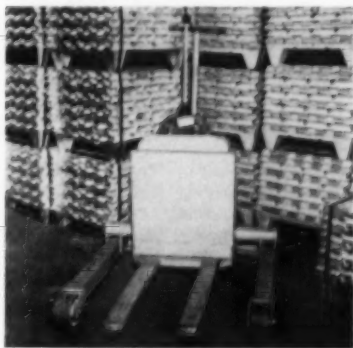
Circle 35 on Card Facing Page 69

and EQUIPMENT

PLEASE USE THE READERS' SERVICE CARD • • PAGE 69

Straddle Hand-Lift Truck

Market Forge Co. has developed a new straddle hand-lift truck especially designed to accommodate leg clearance under 2 in., the truck handles short hauls and load maneuver-

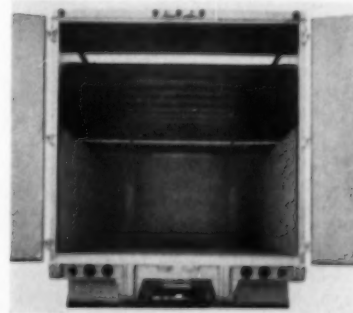


ing. With the hand-lift truck, one man can handle a 2,500-lb load. The truck utilizes the Market Forge standard hydraulic system and steering mechanism for ease of operation.

Circle 36 on Card Facing Page 69

Reinforced Plastic Skylight

The addition of a completely new type reinforced plastic skylight to the CID (Customer Individualized Design) line has been announced by Trailmobile, Inc. Being made of alu-

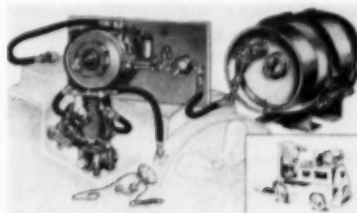


minum and plastic, it becomes one of a series of roof sheets lockseamed together to form the complete trailer roof. The skylight area of each of the new type is 15x90 in. A single skylight, or more in any combination, may be used depending upon the operator's specifications.

Circle 37 on Card Facing Page 69

LP-Gas Conversion Kit

Industrial Gastruck, Inc., has announced a pre-assembled kit for con-



verting all makes of industrial lift trucks to LP-gas operation in three or four hours. Emphasizing the ease of installation, all lines, fittings and carburetion assembly are mounted for bolt-on arrangement. All parts are made to the proper size to fit any model, make, shape or size of truck. All parts are clearly identified for simple, sure installation.

Circle 38 on Card Facing Page 69

Two-Wheel Hand Truck

A new two-wheel hand truck with safety-knuckled guards has been manufactured by Palmer-Shile Co. It is offered in two styles, one straight back for handling boxes, crates, bags, the other has a concave back for easy handling of drums, barrels, etc. Both

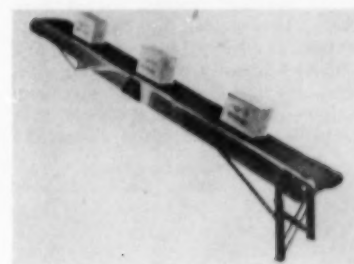


styles come in two sizes; 18 in. wide x 42 in. high, and 20 in. x 48 in. high. A heavy nose plate extending 7 in. insures easy pick-up.

Circle 39 on Card Facing Page 69

Light-Weight Conveyor

A lightweight, highly maneuverable belt conveyor with a total distributed load capacity of 250 lb is being marketed by The Colson Corp. This conveyor is of aluminum truss construction. It is 16 in. wide in



lengths ranging from 6 to 20 ft. Weight ranges from 145 to 255 lb. The 10-in. wide belt is of non-slipping three-ply duck and moves at the rate of 65 fpm. There is a take-up adjustment at each end. Units up to 12 ft in length are powered by 1/2-hp motors and units from 14 to 20 ft in length are powered by 3/4-hp motors.

Circle 40 on Card Facing Page 69

Fork-Lift Truck

A new model hi-duty fork lift truck has been announced by Transitier Truck Co. The Hi-Duty 600 has a lifting capacity of 6,000 lb rated at



24 in. and a normal stacking height of 10 ft. It is powered by a new 6-cyl, 75-hp industrial engine and equipped with the patented Hydroflex clutch, power steering and Duo-Drive transmission.

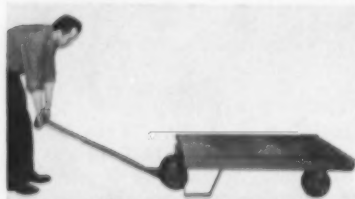
Circle 41 on Card Facing Page 69

DA NEW PRODUCTS and EQUIPMENT

CONTINUED FROM PREVIOUS PAGE

Skid-Jack System

A complete materials handling system, suited to those businesses that do not require a full lift truck installation and yet desire more than can be obtained through use of floor trucks, is provided by the Barrett-Cravens Co. Nifty-Lifter system. For industries already with handling systems, it can be used as auxiliary equipment. The unit is a simple, safe mechanism built to stand abuse and



careless handling. Each lift can service from 4 to 25 skids. The semi-live skids used with it are steel bound and have hard-wood topboards. They can be converted to standard type four-leg skids at any time.

Circle 42 on Card Facing Page 69

Heavy-Duty Fork Truck

A new "W" fork lift truck, announced by Gerlinger Carrier Co., is the manufacturer's answer to industry's demands for heavy-duty material handlers with wide axle front and back. It is available in six capacities in a wide range of sizes: 12,000, 15,



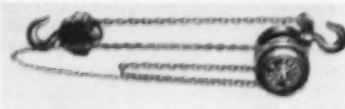
000, 16,000, 18,000, 20,000, and 22,000 lb. All six wheels are standard 20-inch truck wheels, using standard

pneumatic truck tires. Power is supplied by a 160-hp Ford V-8 industrial overhead valve engine. Where continued low engine speeds dictate higher engine torque, a Hercules JXD is optional.

Circle 43 on Card Facing Page 69

New Chain Hoists

Chester Hoist Div., The National Screw & Mfg. Co., has announced a new Zephyr light-weight hoist line of

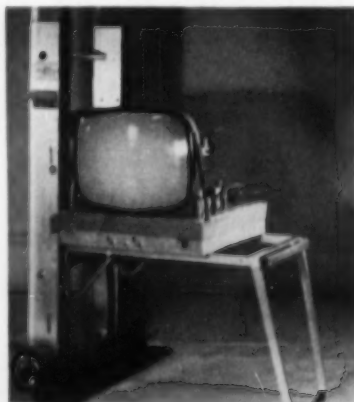


electric and standard hand chain hoists. The new hoist line now is available in capacities to six tons, and in Army trolley - type and clevis - connected adaptations.

Circle 44 on Card Facing Page 69

Dolly Attachment

A new folding platform attachment, designed to adapt the handling convenience of Yeats appliance dollies for carrying TV table models and chassis, has been put into production by the



company. The load-bearing surface is 13½ in. wide, 24 in. long, and 17½ in. high. When not in use, the platform folds to compact size, so that the dolly can be kept on a delivery or pick-up vehicle.

Circle 45 on Card Facing Page 69

Drag-Line Trucks

Howe Scale Co. has brought out a new line of extra strong, lightweight, easy-rolling drag-line trucks. All



welded steel framework provides strength and durability. Replaceable hard wood deck is light in weight, provides long lasting, non-slip cargo-carrying surface. Standard deck heights range from 7½ to 14 in. Roller bearing wheels with easily accessible grease fittings are standard. Sealed bearing wheels are optional. Wheels may be steel, plastic or rubber tired.

Circle 46 on Card Facing Page 69

Improved Drum Lift

A new, improved drum lift, which enables one man to handle steel drums (55 and 30 gal), fibre drums (18- to 23-in. dia), and acid carboys (13 gal), has been announced by Sterling.



Fleischman Co. The lift is rated at 750-lb capacity. Lifting power is supplied by a foot-operated hydraulic jack. Drums can be raised for pouring to a height of 53 in. They may be stacked two-high vertically. The center of gravity of the drum is always maintained within the four casters, making it impossible for the lift to overturn. A feature of the lift is the easy-lock girdle which grips the drum firmly and is attached quickly.

Circle 47 on Card Facing Page 69

Continuous Power

The new Ready-Power Co. model HA-3, continuous power unit for operation on LP-Gas is designed for use



on the 2-, to 5,000-lb. sit-down type electric trucks. A hinged cover and side plate allows easy access to engine accessories without removing the fuel tank.

Circle 48 on Card Facing Page 69

Rail Car Shunter

Railroad Car Shunter Corp. of America is distributing a new car shunter. The push-rod of this unit acts on the railroad car like a man pressing his shoulder against the car to push it forward. This arrangement



automatically produces the frictional pressure required between the driving wheel and the rail to move the wagon forward by means of the engine power.

Circle 49 on Card Facing Page 69

Draw-Bar Pull Indicator

Since the basic efficiency of all tractors and other towing equipment is measured by the amount of draw-



bar pull actually delivered, a simple means of checking such power is of prime importance. Such tests are accomplished easily through the use of a portable Dillon Traction Dyna-

meter manufactured by W. C. Dillon & Co., Inc., which instantly indicates in pounds the amount of draw-bar force exerted. In the test illustrated, a Dillon Dynamometer was positioned in series between a farm tractor and a large semi-trailer (not shown) of 37,500 lb dead weight. Conducted from a standing start, braking force was gradually applied by the trailer until the tractor motor stalled. In this test, the Dynamometer registered an actual load of 5,100 lb. These instruments are also available in 12 other ranges, from 0-500 up to 0-100,000 lb.

Circle 50 on Card Facing Page 69

Swing-Shift Attachment

Swing-Shift Mfg. Co. has announced that its attachment for pivoting and shifting the load into alignment without moving the fork



truck is available for use on Automatic, Buda, Clark, Yale & Towne, Gerlinger, Towmotor, and Canadian Mobile fork trucks.

Circle 51 on Card Facing Page 69

Heavy Duty Coil Tong

A recent innovation of Mansaver Industries, Inc. in handling metal coils of considerable weight is the new

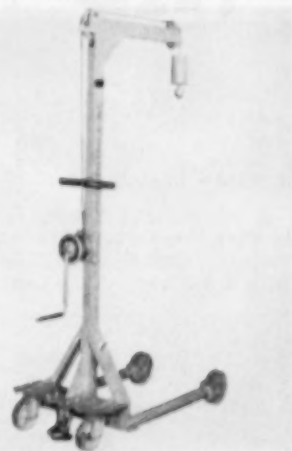


style G-1616 coil tong. The unit employs a four bar mechanism which compels each member of the grab to move in a constrained path—claimed to operate more efficiently than the use of a parallelogram type motion.

Circle 52 on Card Facing Page 69

Portable Hand Crane

The portable hand crane, because it is easily maneuverable and its base is open to permit straddling, often is the most economical and efficient method of handling certain objects. This unit from Lewis-Shepard Prod-



ucts, Inc., has a capacity of 250 lb, with a lifting height of 5 to 6 in. The boom is 25 in. long and the overall height of the crane is 6 ft 8 in. It is equipped with 6 in. swivel casters on front and 7 in. rear wheels for easy maneuverability. A single foot-operated floor lock holds the crane in a stationary position.

Circle 53 on Card Facing Page 69

Hand Lift Truck

A hand truck which makes it a simple operation to lift a 700-lb load from floor level to truck body, bench or wall shelf is manufactured by Concrete Machinery Ltd. As a protection against the load running free when



being lowered, there is a quadrant locking device which holds the load at any desired height. By a quick pull-out of the hand crank handle, and then releasing it, the platform can be lowered one section of the safety quadrant. When released, the hand crank handle snaps back and locks.

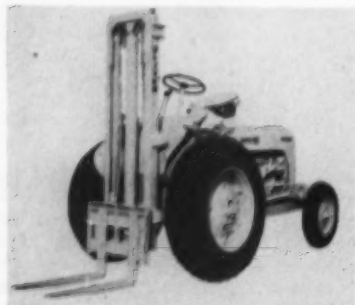
Circle 54 on Card Facing Page 60

DA NEW PRODUCTS and EQUIPMENT

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4,000-Lb Fork Truck

A new Super 55 fork lift is offered by The Oliver Corp. With a lifting capacity of 4,000 lb, models are offered with 8 and 10-ft tilting mast to ac-

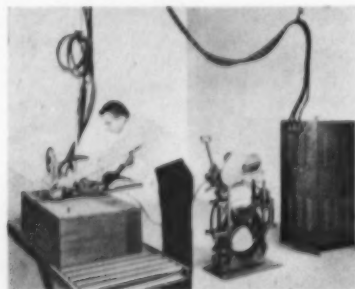


commodate different attachments including standard forks in four lengths, concrete block forks, $\frac{1}{2}$ -yd hydraulic scoop bucket, and dozer blade.

Circle 55 on Card Facing Page 69

Sealer and Stretcher

Manufacturers and dealers in heavy items may be interested in a new hydraulic powered heavy duty flat steel strapping combination sealer and stretcher with a built-in waste cut-off shear that has been developed by

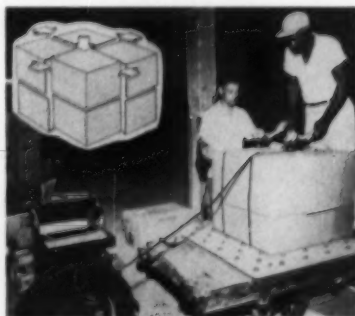


Gerrard Steel Strapping Div., United States Steel Corp. This heavy duty sealer and stretcher can be used for the tying of bulky and heavy items such as sheet steel and lumber. The new model accommodates $\frac{3}{4}$ in. and $1\frac{1}{4}$ in. heavy duty flat steel strapping.

Circle 56 on Card Facing Page 69

All-Purpose Container

Signode Steel Strapping Co. has announced its new Adjusta-Pak, an all-purpose container which, in three sizes, is claimed can do the work of 800 master package sizes. The container is made by the user from eight separate pieces of scored and slotted corrugated board, with no right or

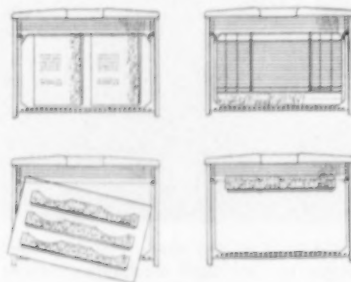


left sides and no top or bottom. They are telescoped together to form one outer container, and are secured with steel strapping.

Circle 57 on Card Facing Page 69

Paperwork Storage

A new refinement in office automation, a method of housing and indexing strips of perforated paper tape and edge-punched cards to save time in common-language data-processing operations, has been announced by Remington Rand, a Division of



Sperry Rand Corp. The method is a simple adaptation of Kardex, the visible-record system on which many of the world's business facts are stored.

Master tapes and cards are available at a moment's notice, protected against wrinkling or tearing. Standard sized Kardex pockets accommodate both five and eight-channel tapes, fitted into a holding card. Edge-punched cards are inserted directly into the pocket, requiring no additional holding card.

Circle 58 on Card Facing Page 69

Steel Box Truck

A tilt-type steel box truck, equipped with pneumatic rubber tires, is offered by the Hamilton Caster & Mfg. Co. The truck is constructed of

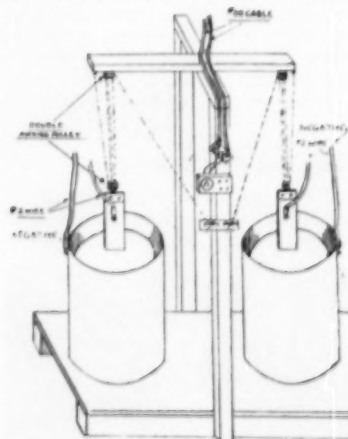


formed sheet steel, welded and mounted on a hardwood frame, with smooth inside surfaces. Overall size is 26 in. wide, 49 in. long and 24 in. deep. Overall height is 36 in. The truck is capacity rated to 800 lb.

Circle 59 on Card Facing Page 69

Do-It-Yourself Rheostat

A water rheostat for test discharging batteries to determine battery conditions has been designed by Gould-National. 55-gal. steel drums filled with salt water are the principal resistance elements. The water

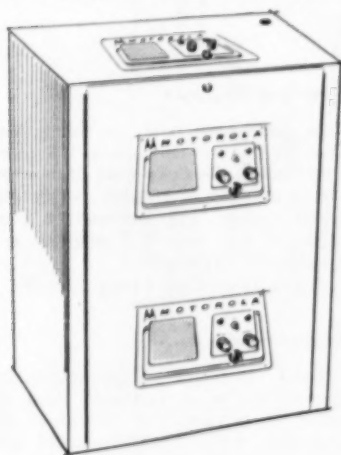


barrel rheostat can be used instead of metal resistance grids or in combination with small metal grids. The barrel is connected to the negative terminal of the battery being tested. The metal electrode is the positive. The bottom of the drums should be covered with a nonconductor.

Circle 60 on Card Facing Page 69

Transmitter-Receiver

Motorola has announced the Compastation transmitter-receiver as a new addition to its standard line of fixed FM two-way radio equipment operating in the 25-54 or 144-174 megacycle band. This unit includes a 60-



watt transmitter and the Motorola Sensicon G receiver. It features a removable control panel with built-in speaker which can be placed in any one of three positions on the cabinet.

Circle 61 on Card Facing Page 69

Clamp for Unstable Loads

A hydraulically operated load stabilizer that holds column stacked cases firmly to the pallet eliminates breakage and speeds handling of fragile or unstable loads. The new clamp is designed to operate with all Lamson Mobilift stand-up or sit-down industrial trucks. Overarm and plate of the new Mobilift unit are only 4 in. thick. The clamping device consists of a ball mounted, 24x48-in. stabilizer plate, faced with a 1-in. pad of sponge rubber. This plate hydraulically

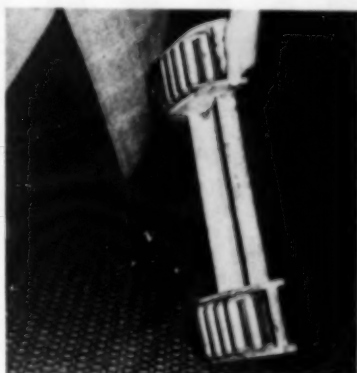


cally closes on the load from above to hold it firmly to the pallet. The combination of ball mount for the plate with sponge rubber facing pad automatically compensates for uneven stacking. The clamp opens to a maximum of 58 in. above the lower forks, closes to a minimum of 38 in.

Circle 62 on Card Facing Page 69

10-Ton Trucker's Skate

Combining two standard Multiton roller skids with a 4-ft length of 4-in. heavy, channel, The Stokvis - Edera

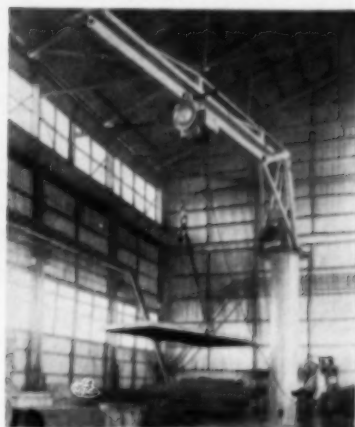


Co. has produced a new heavy-duty trucker's skate with a rated capacity of 10 tons. The new unit provides constant alignment of individual roller skids for easy rolling and safe turning, and its relatively large size prevents loss in large terminals. By appropriate placing of the skate, at least 75 per cent of the weight is carried by the skate. At least three times the rated capacity of the fork truck can be carried through use of this new trucker's skate.

Circle 63 on Card Facing Page 69

15-Ton Jib Crane

A power-rotated jib crane with lifting capacities up to 15 tons has been introduced by R. G. LeTourneau, Inc. Available in capacities of 6, 7½, 10 and 15 tons, each crane has a 25-ft boom which, when rotated in a full



circle, covers 1,965 sq ft of floor space. The electric rotating mechanism, as well as electrically-powered hoist and hoist trolley which are available, all are built to provide extreme precision and fraction-of-an-inch control.

Circle 64 on Card Facing Page 69

V-Line Heavy Duty Trucks Introduced



A new "V-Line" of International heavy-duty trucks, featuring three new V-8 engines, is in production at International Harvester Co. Nine series of trucks in conventional and cab-over-engine, four and six-wheel design comprise the V-Line. Models are available with gross vehicle weight ratings of 24,000 lb and up, and gross combination weights of 50,000 lb and up.

Power is supplied by new International V-8 engines of 401, 461, and 549 cu in. displacement with horsepower ratings of 206, 226, and 257. The new V-Line models have been designed and built specifically for to-

day's heavy-duty truck operations. The V-8 power plants are additions to the line of 6-cyl Red Diamond gasoline and liquefied petroleum gas engines, and diesel engines available in the International heavy-duty truck models.

Conventional four-wheel models are available in the V-Line in the Model V-195, and the V-200, and V-220 Series; and conventional six-wheel models are included in the VF-190 and VF-200 Series. Cab-over-engine models are available in the VCO-195, the VCO-200 Series, and the VCO-220 Series.

Circle 65 on Card Facing Page 69

**FREE**

LITERATURE

Shipside Terminals—Warehouse

Encinal Terminals and Warehouses has prepared an attractive brochure describing its complete shipside terminal and warehousing facilities in Alameda, Calif.

Circle 66 on Card Facing Page 69

Walkie Pallet Truck

Specifications on Models 40P and 60P are produced in a folder issued by Clark Equipment Co., Industrial Truck Div. Models 40P and 60P are 4,000- and 6,000-lb capacity, walkie type, pallet trucks.

Circle 67 on Card Facing Page 69

Live Storage

Trak-Rak, a top- or under-running crane with a vertical rotating column which incorporates the features of a fork truck, is described in literature published by Chicago Tramrail Corp. The cranes were designed to solve two major problems in materials handling—utilization of maximum cube and utilization of minimum aisle space.

Circle 68 on Card Facing Page 69

Moisture-Proofing Concrete

Losorb, a new additive for moisture-proofing concrete and cement materials, is described in a new bulletin page published by the Pennsylvania Industrial Chemical Corp.

Circle 69 on Card Facing Page 69

Semi-Live Skids

Thomas Truck and Caster Co. describes its complete line of semi-live skids and skid jacks, called Jak-Tung, in a new brochure. The brochure gives specifications and application data.

Circle 70 on Card Facing Page 69

Jack Manual

All types of jacks, for a variety of lifting operations, are included in a specifications booklet published by Duff-Norton Co. Dimensions and selection charts are included.

Circle 71 on Card Facing Page 69

Transportation Dictionary

The traffic staff of Roadway Express, Inc., has prepared a 28-page dictionary of "Motor Carrier Abbreviations and Transportation Terms." It includes most of the terms and expressions peculiar to the industry.

Circle 72 on Card Facing Page 69

Systems Analysis

Standard Register Co. is distributing a new 14-page booklet entitled, "Systems Analysis—Modern Planning for Clerical Functions." Theme of the story is paperwork simplification.

Circle 73 on Card Facing Page 69

Electric Car Puller

Car pulling is claimed to be a simple, safe, efficient, one-man operation with the Style M Electric Capstan car puller and barge mover, described in a specifications sheet issue by Silent Hoist & Crane Co.

Circle 74 on Card Facing Page 69

History of Labels

A booklet covering the use of labels has been prepared by the Allen Hollander Co. Titled "History of Labels," it presents a record of the primitive usages of labels from early times to the beginnings of our present marketing age.

Circle 75 on Card Facing Page 69

Vertical Pallet Conveyor

In manufacturing plants and warehouses, often it is necessary to utilize several floor levels in the handling of palletized cases. A new bulletin by Alvey Conveyor Mfg. Co. describes the application of the fully automatic Vertical Reciprocator Conveyor for such multi-level operations.

Circle 76 on Card Facing Page 69

Storage Racks

Newest literature of all storage racks produced by the American Metal Products Co. is available in a plastic bound catalog of standard size for convenient filing. It is designed so that revised and future literature easily can be inserted.

Circle 77 on Card Facing Page 69

New V-8 Engines

In connection with its newly announced line of heavy-duty V-8 powered trucks, International Harvester Co. is offering a 16-page booklet in which design and engineering features of the new V-8 engines are graphically explained.

Circle 78 on Card Facing Page 69

Roller Chain Guide

Some 148 pages of information on one of the most complete lines of roller chain made is contained in Link-Belt Book 2457. Included are sections on stock drives, installation and maintenance, lubrication, conveyor chains, casings, and other such subjects.

Circle 79 on Card Facing Page 69

Aluminum Trailers

A six-page folder has been issued by Brown Trailers, Inc., describing the new high cube Series-H aluminum trailer, which reportedly provides 20 per cent more payload capacity than former models. The folder pictures and describes many advantages of the new trailers, such as the new electrical pan with automatic circuit breakers; the new, improved "B" version of the Brown 203 running gear; a lighter, stronger king pin structure; and a wide selection of floors and liners.

Circle 80 on Card Facing Page 69

Box Specifications

Recommended specification (I-1A) for nailed wooden and lock corner boxes for both domestic and export shipments of industrial items has been released by the National Wooden Box Association for the guidance of container users.

Circle 81 on Card Facing Page 69

Elevating Tailgate

H. S. Watson Co. announced a new elevating tailgate for pick-up trucks. It is easily loaded from either side (as well as back) for parallel curb parking. It has a lifting capacity of 650 lb and is hand winch-operated, with a completely automatic load brake in operation at all times.

Circle 82 on Card Facing Page 69

Steel Floor Plate

Steel floor plate is offered as the answer to problems of floor wear in warehouses, production areas, and on shipping docks in a new folder being offered by Acme Steel Co.

Circle 83 on Card Facing Page 69

Shippers' Guide

Needhams, an East Coast motor freight carrier, has prepared a Shippers' Guide of for-hire motor carrier service between New York, New Jersey, and Pennsylvania.

Circle 84 on Card Facing Page 69

Piggy-Back Service

St. Louis Southwestern Railway has issued a directory on its retailer-on-flatcar service between Buffalo, Chicago, Cincinnati, Cleveland, Columbus, Dayton, Detroit, Fort Wayne, Louisville, Milwaukee, Minneapolis, Pittsburgh, St. Paul, Toledo, Wheeling, Youngstown, and other points.

Circle 85 on Card Facing Page 69

Walkie-Type Trucks

Its complete line of walkie-type electric trucks is described in a new folder by Lift Trucks, Inc. Included are high- and low-lift pallet and platform trucks, industrial tractors, and special trucks.

Circle 86 on Card Facing Page 69

End-Control Trucks

Lamson-Mobilif Corp. outlines specification and other data on its series of rider-type, stand-up, end-controlled fork trucks. The trucks are designed for easier handling in crowded areas.

Circle 87 on Card Facing Page 69

Communications Equipment

General Electric describes its two-way mobile radio equipment for industrial use in a new brochure. Included are specifications on types of equipment, and several application stories.

Circle 88 on Card Facing Page 69

Slotted Angle Shelving

Scores of ideas on using Dexion Slotted Angle are contained in a new booklet published by Acme Steel Co. Photographs and descriptions of current commercial and industrial applications show the versatility of Dexion for a wide variety of plant maintenance and equipment needs. Accessories which add to the usefulness of the material are shown, including the Dexion Cutter, steel panels for shelving or stair treads, and casters for movable equipment.

Circle 89 on Card Facing Page 69

Petroleum Handling

Materials handling savings by both Union Oil Co.'s Los Angeles terminal and refinery and Cities Service Co. plant at Linden, N. J., are described in three Field Reports now available from Hyster Co. The reports are prepared in case history style.

Circle 90 on Card Facing Page 69

Handling Survey

Details on a typical materials handling operation in the food industry, with on-the-job photographs showing how one user of fork lift trucks saves \$5,000 a year over manual methods, are contained in a handling survey just completed by Towmotor Corp.

Circle 91 on Card Facing Page 69

Defense and Railroadings

Defense plans for the nation's railroads against possible enemy attack upon the continental United States are outlined in a booklet published by the Association of American Railroads.

Circle 92 on Card Facing Page 69

Books

Custom House Guide

The 1956 edition of "The Custom House Guide" is off press. The 1,688-page book provides the latest U. S. rates of duty in accordance with all acts of Congress, trade agreements, and GATT. It features also the system of applying, against each of the 20,000 commodities in the Alphabetical Index, the appropriate customs rate of duty paragraph, and Schedule A classification number and description.

The U. S. Customs Regulations, Administrative Provisions of the Tariff Act, and the Internal Revenue Code have been revised to include all official revisions and additions. A new feature is Marking of Imports, a digest of all rulings concerning import marking. Available to Guide subscribers only, the Digest represents an official compilation for use by Customs personnel.

Also included is the revised listing of United States Customs Ports of Entry and their corresponding ports in Canada and Mexico. In addition, each of these ports indicates the means of transportation between it and the corresponding port across the border. Custom House Guide, Box 7, Station P. Custom House, New York 4, N. Y. Price \$25 plus postage (includes 12 monthly issues of the Bulletin.)

For prompt service, use postage-free postcard provided to obtain FREE LITERATURE and NEW PRODUCT information described in this issue. All material is FREE unless otherwise noted.

Magnesium Handling Equipment

"Pusharound Materials Handling Equipment," a new 12-page catalog of lightweight magnesium materials handling equipment, has been issued by Brooks & Perkins, Inc. Various models of magnesium hand trucks, platform trucks, shelf trucks, bin trucks, handling racks, transfer trucks, garment trucks, and dollies are pictured and described.

Circle 93 on Card Facing Page 69

Powered Walkie Truck

The Raymond Corp. has entered the powered walkie field with a new piece of equipment that is described in Bulletin No. 910. The new truck is powered by four conventional automotive type batteries, connected in series to provide 24-volt operation for ramps and high speed travel on long hauls.

Circle 94 on Card Facing Page 69

New Type Tape

A new brochure describing how silver cloth tape aids in duct installation has been prepared by the Permacel Tape Corp. Constructed with a plastic-coated cotton cloth backing, the tape, No. 691, is water and moisture-resistant, and provides an effective seal against air leaks and dust.

Circle 95 on Card Facing Page 69

Steel Strapping

A new 44-page steel strapping catalog, containing constructive ideas to help speed packaging, lower handling costs and achieve safe shipment, has been published by Acme Steel Co. The booklet contains more than 65 drawings and photographs showing strapping applications. Basic ways of using steel strapping are described, including reinforcing, palletizing and skidding, bundling, baling and tying.

Circle 96 on Card Facing Page 69

Two-Way Radio

"Five Trucks Do the Work of Six," is the title of a reprint being offered by Radio Corp. of America. The article tells how a large manufacturing firm has cut materials handling costs through installation of two-way radio.

Circle 97 on Card Facing Page 69

By Edwin J. Knudsen

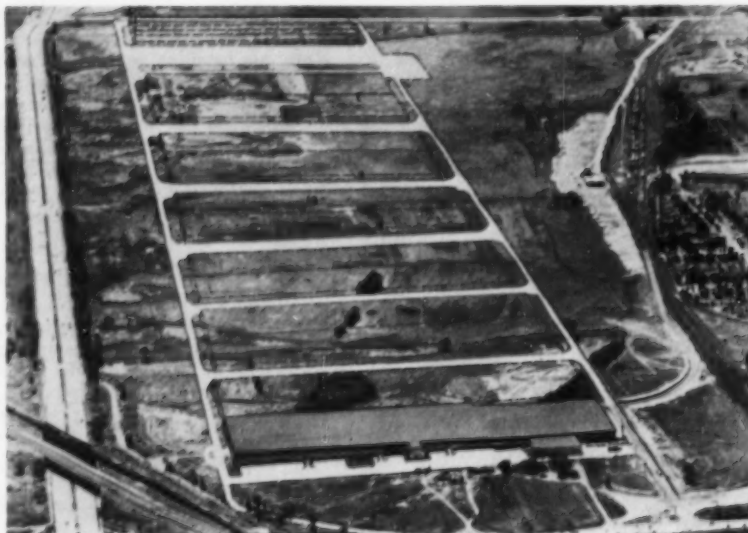
A SAVINGS of more than 50 per cent in transportation costs is one of many economies being realized at the Calumet Industrial District Co.'s new food warehouse, in Chicago. The saving is made through elimination of less-carload and less-truck load shipments.

Measuring 1,060x248 ft, the single-story structure is the first of 12 similar warehouses that eventually will be built at the site. The project, which will cost about \$25 million, will be the largest food distribution center in the world. At present, the Kroger Grocery Co. occupies one-third of the building under a lease arrangement, leaving a 696x248-ft area for Calumet's operation.

The building was designed especially for ease of warehousing operations and construction economies.

Order Pooling

Key to the cutting of transportation costs for manufacturers



First of 12 completed warehouses in foreground. Note transportation facilities

Order pooling in new food distribution center effects 50 per cent transportation cost saving—other features include high stacking, unit loading, and mechanization

Food Warehousing with a Plan

and wholesalers who use the warehouse lies in the employment of an order pooling method. Shipments come by rail over the enclosed spur on one side of the building, and by road trucks on the other side.

The rail dock accommodates 15 cars, while the truck dock has 20 spots for receiving and shipping, with an additional five truck spots at the end of the building.

Terminal time is kept at a minimum by the use of three 16-ft ramps which permit entry of the trucks into the warehouse for direct loadings and unloadings.

Equipment used for block stowing and loading out the pallet unit loads are 4,000-lb gas-powered and

gas-electric fork trucks. Each truck is equipped with side shifters for pin-point stacking.

To utilize the maximum cubic space, loads are tiered 18 ft high. They are marked with lot numbers and stacked so that the older loads go out first. The average time for unloading a truck is five minutes, and for loading out, six minutes.

It was found, however, that when unloading the freight cars, it was more practical to use smaller equipment because of the restricted working space. Two rider-type and two walking-type pallet trucks are used.

The aisle layout was designed

to allow easy passage for the motorized equipment. The transverse aisles leading to the truck ramps are 24 ft wide, and are permanent. The longitudinal aisles are 15 ft wide at the rail dock, and 20 ft wide at the truck dock. To attain a flexibility in the block stowing patterns, spacing of the three 12-ft wide center aisles are not kept uniform.

To prevent possible deterioration to the concrete floor by the rolling equipment, a concrete sealer is applied at intervals, and a power sweeper keeps the floor clean.

To expedite handling operations



Office is located outside of building which houses transportation tower. Handling operations and truck movement are directed here

Fork truck loading an over-the-road vehicle in huge truck aisle, average time for loading trucks is six minutes; unloading, five



Railroad dock can accommodate 15 cars at once. 15-ft. wide platform permits fork truck maneuverability

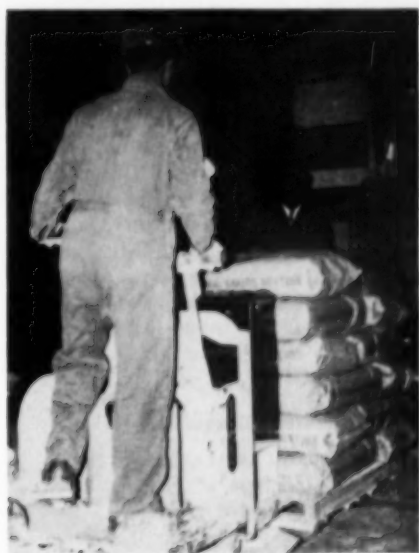
for the Future

and truck movements, a loud speaker system was installed. The system reaches all points of the warehouse from a transportation tower located in the office, just outside the building. With this communication system all truck movements are under centralized control at all times.

An initial savings of \$20,000 in structural steel costs alone was realized by the use of cantilevered roof beam construction. This feature permitted large 24x48-ft bays.

Possible obstructions such as electric conduits and heating ducts are kept within column and beam flanges, and over working aisle areas to utilize all space. Vertical clearance between floor and ceiling is 18 ft, 6 in.

Ten oil heaters, with heating capacities ranging from 750,000 to one million Btu each are suspended 5 ft down from the ceilings. They are located over the truck aisles to keep the building at a uniform temperature of 58 deg. Nine fans, strategically spaced throughout the building, provide ventilation when needed. •



Low-lift trucks are used for loading freight cars because of easier entry and exit

Four-high stacking of pallet loads All trucks are equipped with side-shifter attachments



THE National Industrial Traffic League's Special Committee on Government Rates Under Section 22 does not endorse the changes in Section 22 of the Interstate Commerce Act reflected in HR-6141. In lieu the League supports the suggestions of HR-525, subject to some minor modifications, and urges that HR-525 be considered separately and acted upon.

The League policy is reflected in the record made at the 1953 Annual Meeting, subsequently twice reconfirmed.

Many League members favor the adoption of HR-525 as it stands. This would mean complete repeal of those provisions of Section 22 which permit free or reduced rates to federal, state and municipal governments. Others have the opinion, seemingly shared by the Interstate Commerce Commission, that military considerations require some provision for establishment of reduced or special rates for military purposes during times of emergency.

Present Objections

Objections of the League to the existing provisions of Section 22 rest on many varied grounds.

Essentially, provisions of Section 22 are as they appeared in the original Act to Regulate Commerce. It was intended to permit

The Hearings

Mr. Staley's remarks are excerpted from testimony presented by him at hearings on the National Transportation Policy conducted by a Subcommittee of the House Interstate and Foreign Commerce Committee. He spoke on behalf of the National Industrial Traffic League.

Other groups testifying in agreement with NITL on Section 22 included the U. S. Chamber of Commerce, Air Transport Assn. of America, American Merchant Marine Institute, American Trucking Assns., American Waterways Operators, Committee of American Steamship Lines, Committee for Pipe Line Cos., Intercoastal Steamship Freight Assn., Movers Conference of America, Munitions Carrier Conference, the Transportation Assn. of America, International Brotherhood of Teamsters, and the ICC.

Should Section 22



**Section 22 should be killed—it permits
cut-throat rate making, unfair bargaining,
and pitting of one carrier against another**

By John R. Staley

Vice President, Quaker Oats Co., Chicago, Ill.

so-called non-land-grant railroads to meet the reduced rates available to the United States Government as result of land-grant agreements.

Prior to the repeal of the land grant provisions of the Interstate Commerce Act, substantially the only use made of Section 22 was to permit the equalization of competing routes. This section of the Act was not resorted to by the government for any substantial movement of freight or passengers except for these equalizing purposes.

The Act repealing the land-grant provisions became effective Oct. 1, 1946. It stated that the government should pay "the full applicable commercial rates. . ."

Birth of Abuse

After the repeal of the land-grant provisions, however, certain people in government realized that the wide open provisions of

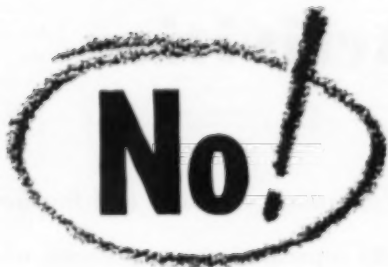
Section 22 permitted them to bargain with the carriers under peculiar circumstances. This permitted them to secure for the government special privileges and reduced rates, thereby nullifying the obvious intent of the land-grant repeal.

These special rates are not subject to any of the normal standards of reasonableness or prohibitions of discrimination or preference, such as must be observed by ordinary shippers.

It has been averred repeatedly in public hearings that some people in the service of the government have deliberately invited one form of transportation to bid against another for a specific allotment of government tonnage. In other instances they ask for a special rate, frequently with none of the normal standards of justification being advanced.

The ordinary standards or principles (Please Turn to Page 96)

be Eliminated?



Complaints involving secrecy, auction block bidding, and the civilian subsidization of government traffic are denied—categorically

By Brig. Gen. E. C. R. Lasher

Executive Director, Military Traffic Management Agency

AS I understand the situation, the principal complaints against Section 22 rates and arrangements are:

1. That such rates and arrangements are secret;
2. That military traffic is placed on an auction block and awarded to the lowest bidder;
3. That such rates and arrangements place an undue burden on civilian traffic, requiring civilian traffic to pay higher charges to counter carrier losses in hauling military freight.

So far as the military is concerned, these complaints and others levelled at Section 22 will not withstand the scrutiny of truth, and can be denied categorically.

Secrecy

Certain military shipments must of necessity be classified as secret.

However, the greatest bulk of

so-called Section 22 tenders are not secret. On the contrary, these tenders are made accessible to any interested party at each of the Army Zone Transportation Offices and at Washington, D. C.

The Auction Block

As to military traffic being placed on the auction block, provisions of Section 22 are permissive, not mandatory. Demands that carriers establish a specific rate or an unremunerative rate cannot be enforced. What the carrier or his rate-making agencies do is within the purview of managerial discretion.

The fact that less than five per cent of the total Section 22 freight rate tenders received by the Army result from negotiations initiated by the military is conclusive proof that military traffic is not placed on the auction block. Negotiations for freight movements by the military are based on the recog-

nized accepted principles of rate making and, when submitted to carriers, the basis for claiming a reasonable rate is detailed fully.

Civilian Burden

As to the burden that military rates and arrangements supposedly place on civilian traffic, nothing is farther from the truth. Data released by the Bureau of Transport Economics and Statistics of the ICC show that, for the last several years, Section 22 rates were about 13 per cent above the corresponding level for commodity rates on comparable (but not identical) traffic.

A study made by the ICC indicates that Section 22 traffic actually has but a negligible impact on the nation's total traffic. Rough studies made by my staff produced similar findings, and show that this traffic constitutes approximately one per cent of the total commercial traffic on the nation.

Flexibility Needed

It would be well to examine the worthwhile uses of Section 22 to the carrier, the military, and the taxpayer. Rates made under the provisions of Section 22 are but one facet of the problem. The flexible arrangements that the military can make under the provisions of Section 22 are every bit as important, if not often

(Please Turn to Page 97)

The Hinshaw Bill

General Lasher's remarks are excerpted from an address before the Chicago Transportation Club. He spoke late in May, when hearings on the Transport Policy were in full swing. This address was selected as typical of those presented on behalf of Section 22 by the military and other government agencies.

As this issue went to press, word was received from Washington that the powerful House Rules Committee had deferred action on HR 525, which would have repealed Section 22. Following a short meeting at which Congressmen favoring the Bill presented their views the Committee met behind closed doors to consider the legislation. A simple announcement that no decision had been reached followed the meeting. HR 525 was sponsored by Rep. Carl Hinshaw.

Unification of Scattered Traffic Activities

Keeping numerous raw materials, operating supplies, and finished products moving to and from widely separated plants presents one of traffic management's most serious problems—a good balance between plant responsibility and centralized control is the answer

INTEGRATED aluminum production is a complicated business.

Here traffic management involves substantial responsibility for keeping various raw materials, operating supplies, and finished products moving to and from widely scattered plants. In 1955 this company spent over \$25 million for transportation services in one form or another.

Plant Responsibility

Due to the geographical spread of our operations, with headquarters in Oakland, Calif., we have developed a system of strong authority and responsibility in individual plant management, but with control of routing, rates and other policy matters in the General Traffic Department.

Management definitely recognizes the importance of traffic in order to:

1. Provide the lowest cost transportation for movement of the corporation's products and materials, consistent with the service required;

2. Maintain and improve our relative transportation position in the aluminum industry and related or competitive industries;



By Angus McLeod

Manager of Traffic

Kaiser Aluminum & Chemical Corp.

as told to

John H. Frederick

DA Transportation Consultant

3. Maintain the best possible position for negotiating with the carriers for improved service and reduced transportation costs;

4. Provide operating management at Oakland and the plants, and of the Sales Company, traffic services satisfactory to all concerned.

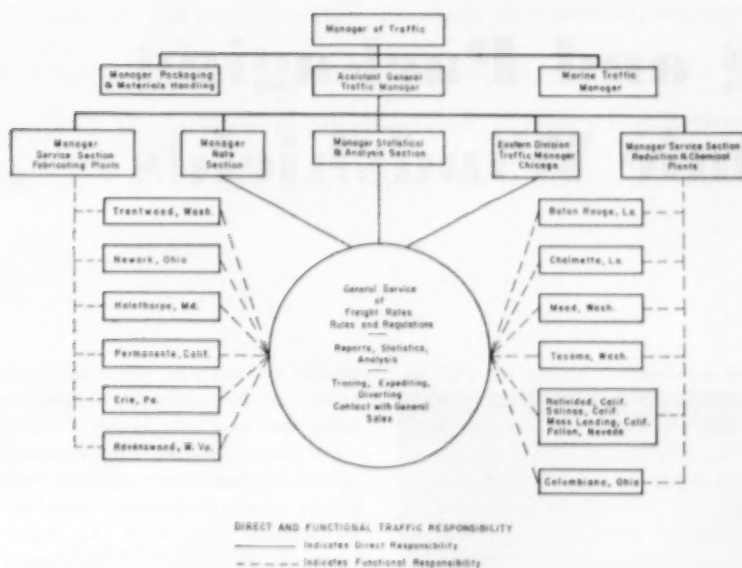
The diversified interests and products of the corporation pre-

Editor's Note: This series of copyrighted articles is being excerpted from a forthcoming book by Dr. Frederick. The editors of DISTRIBUTION AGE gratefully acknowledge the privilege of exclusive prepublication magazine rights.

clude the possibility of maintaining a complete self-contained traffic department in each plant. By having in General Traffic the necessary technical knowledge, tariff library and centralized carrier contacts, economical and efficient transportation services can be provided for all plants and for all products. While the activities of the company now are spread out in numerous plants, warehouses and offices, it is necessary to view the freight traffic picture on a consolidated basis.

Because of the nature of carrier organization and practices, especially in making freight rates, effective policy making negotiations must be concentrated in the general offices. For this basic reason, it is believed essential that centralized control be maintained on the factors of rate-making and other general conditions that govern our ability to negotiate for lowest equitable freight rates and satisfactory service. This is accomplished through the application by the plants of the policies on rates and routes furnished by General Traffic.

There is sufficient latitude in these routing policies to place a



Organizational chart of traffic activities of Kaiser Aluminum & Chemical Corp., showing which phases are direct responsibility and which are functional

heavy burden upon the discretion of the plant traffic personnel. Combinations of routes, intermediate stop-off points and different rated destination territories call for high quality traffic personnel to handle the day-to-day movement of tonnage.

The General Traffic Department is equipped to supply functional direction to the plant traffic units in matters of rates, routing, demurrage, equipment supply, tracing, expediting and liaison with the sales organization. This functional direction is supplied to plant traffic personnel by the service managers for the Fabricating and Reduction and Chemical Plants.

The General Traffic Department also provides corporation management with traffic and transportation studies of new plant locations, warehouse locations and for the expansion of present facilities.

It initiates studies to determine the feasibility of company or proprietary transportation, and manages the equipment and facilities which may be required to provide such transportation wherever it appears desirable to enter into the carriage of our own goods.

The department also represents the corporation before regulatory bodies for transportation both federal and state, at industry transportation meetings and at carrier meetings.

Packaging and Handling

Packaging always is important and the Central Packaging Section of the General Traffic Department cooperates with operating management in developing improved, standardized and economical methods and practices for packaging the various products of the company. Studies of plant materials handling matters are being initiated in the General Traffic Department to determine the feasibility and practicability of companywide consideration of this important transportation activity.

The corporation is concerned not only with domestic but with foreign transportation, and entrusts the establishment of suitable arrangements for the carriage of foreign bauxite and chrome ore used in company manufacturing operations to the General Traffic Department. Suitable contracts, charters, or other operating arrangements are negotiated and ad-

ministered to operate the fleet of vessels required to carry in excess of 2,000,000 tons of bauxite currently used in company operations.

Comment by Dr. Frederick

As has been seen from previous articles in this series, the traffic departments of most multiplant companies are organized on a centralized basis. However, some companies, as in the case of Kaiser Aluminum and Chemical Corp., prefer to perform most functional traffic activities at the plant level, particularly when they have grown rapidly and suddenly find themselves spread all over the country. At the same time there are certain things that can best be handled through centralized authority.

This is particularly true of rate negotiation, so that the whole company may operate more profitably in a competitive market. It also is necessary to have central authority in advising with plant managers and local traffic units:

1. In the interpretation and application of the company's transportation policies and practices;
2. To aid in the selection of qualified traffic personnel;
3. To establish standard practices in all plants for furnishing traffic and transportation information to other plant departments;
4. To prepare formal procedures covering traffic functions;
5. To clarify General Traffic Department relationships with the plants and other departments of the company.

As has been pointed out before, the advantage of decentralization of traffic management is that matters of a local nature can be handled most satisfactorily by the plant group because of its familiarity with the outlying organization and its problems. Also, the placing of responsibility and authority with properly trained plant personnel speeds the work and often reduces expenses. Customers often like to deal with men at the plants where their orders are filled, feeling that such men are in a better position to learn special customer needs and so take action to improve deliveries. •

Packing and Packaging Panoramic Windshields

THE executive management of Libbey-Owens-Ford, early in 1949 anticipated the need for specialization and coordination in the field of packaging and handling of all our products when it created our Packaging and Handling Department. It further saw the need for the scientific approach to this complex problem and has provided us with a complete and modern packaging and testing laboratory.

Our first assignment as a packaging group was the palletization of automotive glass. But little did we know at that time that the thorough study and subsequent design of two types of palletized containers would help us a great deal in the packaging and handling of panoramic windshields, which were not introduced until 1953.

We gathered data from all of

our customers' plants as well as our own on flow, methods of handling, storage, and types of handling equipment available. From this study we were able to establish the overall requirements of a type of palletized container to fill our needs. Seven of the major requirements were as follows:

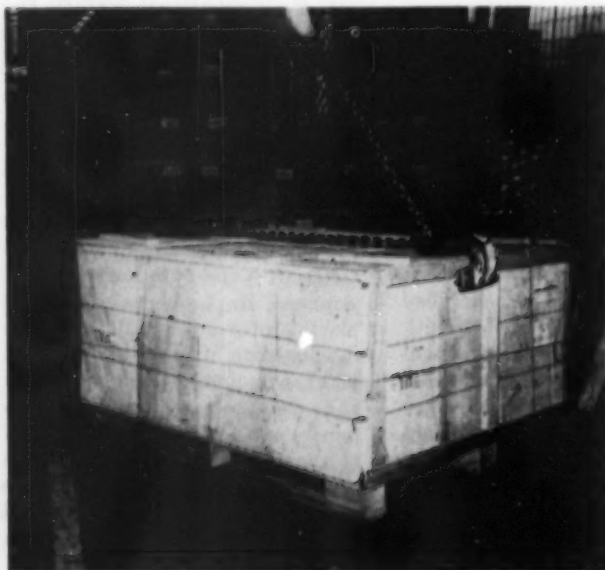
1. Low cost.
2. Structurally strong but lightweight.
3. Ability to knock-down and palletize for ease of handling and minimum storage requirements.
4. Designed to assemble, quickly and easily.
5. Designed to pack and unpack with one side open and the lid removed.
6. Must be able to close quickly and easily and be of fairly tight construction.
7. Must be designed to be handled by overhead crane with grab

hooks as well as with fork-lift truck or transporters—bases to have four-way entry.

A survey of the open market failed to produce a container that would meet all seven of these requirements. So, with the assistance of our vendors of wirebound and panel boxes, we designed a palletized wirebound and a cleated corrugated container which did meet all seven requirements.

In our approach to packaging and handling of panoramic windshields we faced many problems other than the actual packaging. We required additional working space and storage areas. We had to revise our flow of materials, increase and rearrange our finished stock storage areas, and request additional loading space and trackage.

We provided management with estimated information and area



Containers were designed to be handled by overhead crane with grab hooks as well as with fork-lift trucks

Palletized containers, with four-way entry for fork-truck handling, are stacked six high in storage area



A thorough job study on flow, methods of handling, storage, and types of handling equipment available, was necessary to establish the overall requirements of a type of palletized container to fill this firm's needs for curved windshields



By Melvin C. Koester
*Packaging and Materials
Handling Engineer
Libbey-Owens-Ford Glass Co.
Toledo, Ohio*

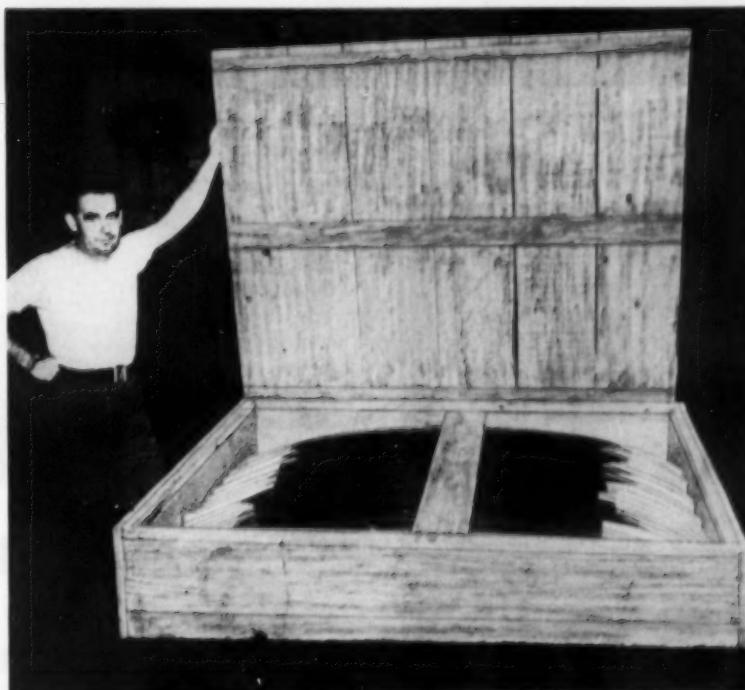
layouts of the requirements for expansions in the packing warehousing and shipping, to facilitate the start of construction of buildings and the purchase of necessary new equipment.

Development Program

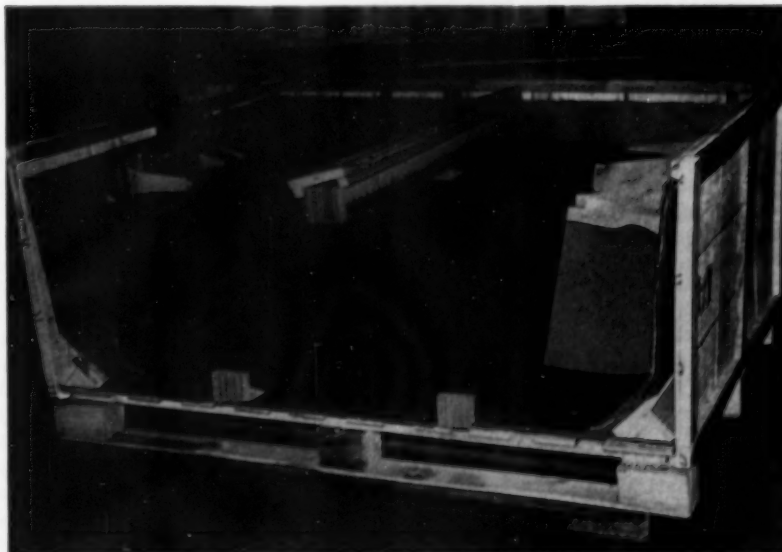
When designs were frozen, and windshields and rear-window bends established, we began the development of our program with the following points as a guide:

1. Flexibility to cope with yearly model changes and variations in production.
2. Standardization of containers and inner packing.
3. Strong but light-weight containers.
4. Establish proper quantities per case, so all glass parts could be shipped in complete sets or jobs.

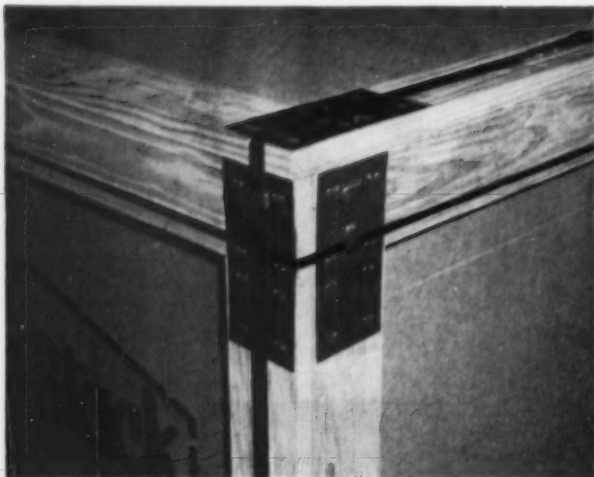
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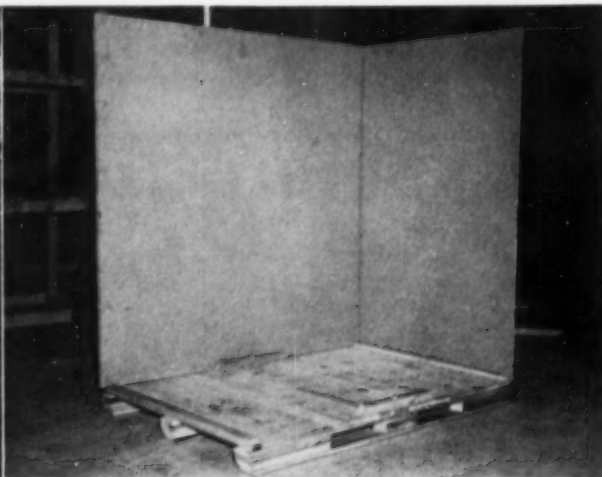
A palletized wirebound and cleated corrugated container met requirements of handling, storage, shipping



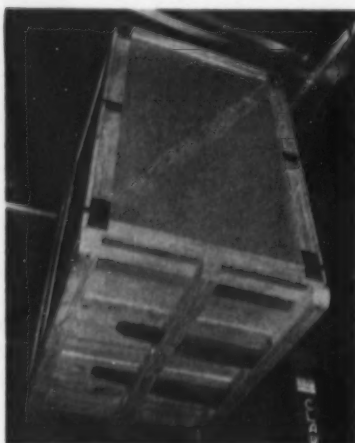
Inner pack supports were designed to carry the loads and restrain the windshields from movement



Clips draw components together, dust-proof box is used for moth-proofing



Any side, top, or bottom of Auto-Stack can be removed to facilitate packing



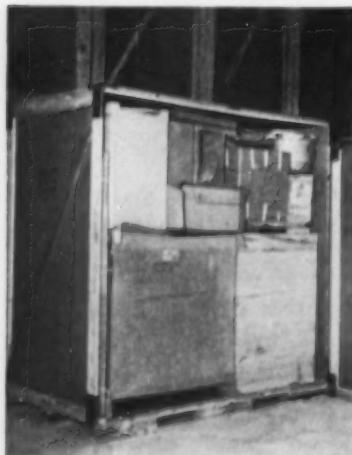
Timber Structures, Inc., box features pallet base for fork-truck handling



Warehousing Adopts the Unit Load

Containers are made in two standard sizes, 4 x 7 x 7 ft and 6 x 7 x 7 ft

Containerization permits unit-load handling of low-density, odd-shaped household goods



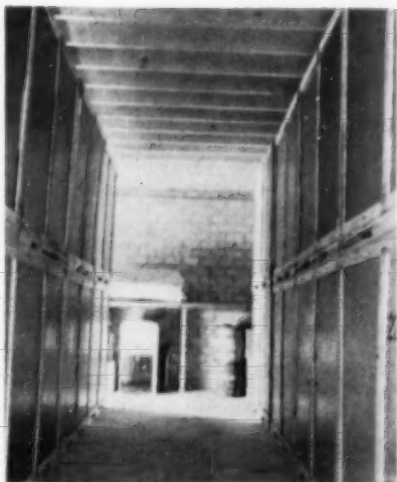
THE trend to containerization in the field of physical distribution has not escaped the transfer and storage industry (see "The Tote Container as a Common Denominator," *DISTRIBUTION AGE*, July, 1956, p. 42).

Introduction of the principle of containerization has been particularly helpful in the household goods moving business, where:

1. It permits unit-load handling of the low-density, irregular-shaped items typical of the industry.

2. It permits high-stacking and utilization of air rights in a field where wasted cube has long been a problem.

3. It permits utilization of modern materials handling equipment, with the customary dividends.



Two- and three-high stacking of containers permits utilization of air rights

4. It permits faster in-and-out movement in an industry where interim handling is the rule rather than the exception, and where the movement of goods seldom is on continuing schedule.

5. It provides more pronounced protection against pilferage.

6. It permits more expeditious dust and moth-proofing of valuable clothing and other household items.

7. It permits a reduction in loss and damage claims through consolidation of items, and

8. It permits better utilization of over-the-road equipment.

Although many household goods warehousemen have been using containers for unit-load handling for a number of years, it has been only in recent years that the containers have been mass produced for general use in the field.

One of the latest containers to make its way to the market is a completely collapsible, reusable, plywood box. Packing of the box is simplified by construction which permits easy removal of any side, the top, or the bottom.

The base of the box is of standard pallet construction. The sides are made of plyveer or plywood, and are attached with a sealed clip. The clips are designed to accommodate railroad or utility-type seals. •

Lift-Truck Attachment Reduces Labor Costs

Lift-truck attachment and specially constructed wirebound crate form team that boosts handling speed and reduces labor costs some \$100 thousand

A REDUCTION in labor costs in warehousing and shipping by upwards of \$100 thousand a year, is claimed by the A. O. Smith Corp., Kankakee, Ill. This saving is based on a newly developed finger-lift attachment for lift trucks which, when used in conjunction with specially constructed wirebound crates, makes storing and loading of crated water heaters a one-man operation.

Six men load and stow 18 to 22 freight carloads of water heaters per 8-hr day, hauling them from the warehouse stock, or from the end of the single crating line that serves the plant.

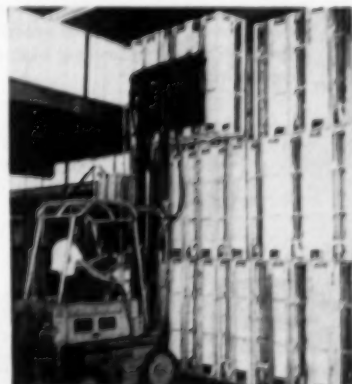
The new attachment consists of spring-loaded fingers mounted on a shaft so that pressure causes them to tilt back individually. Strips of regular saw blades with teeth pointed upward and backward are fitted along each side of every finger to allow it to bite into the load during the hoist and prevent slipping. A hydraulically operated side-shifter on each truck, fitted with the attachment, permits the operator to move the load sideways. The vertical mast of the truck permits high stacking. No pallet or skid base is required.

A load of one to three crates is picked up simply by driving the truck against it so that the fingers are on a plane just below intermediate cleats. The fingers then are raised on the mast so that the saw teeth bite into the wood of the cleats and lift the crates clear.

The load then is carried either to storage, where the same truck high-stacks them, or direct to cars or trucks to be loaded by the same lift truck without any additional help.

Ten manhours were needed to load a freight car. Now, only 45 man-minutes are required without undue physical effort. •

Since it has no forks, the truck can be driven flush with the stack to spot load



Your Butler warehouse a perfect blend of building and builder



Note the pleasing appearance of this Butler warehouse. Die-formed metal panels are tough, tight, maintenance-free. Spacious interiors are post-free, permit unimpeded movement of men and trucks. Pre-engineered Butler buildings go up fast at low cost.



Butler builds more warehouses than any other metal building manufacturer. There are 2 major reasons why:

1. A Butler is a superior building, exceptionally well suited to warehouse use.
2. It is erected by a man who understands warehouse principles and operation — your Butler Builder.

This combination of the right building and the right builder accounts for the remarkable popularity of Butler warehouses. You get such important Butler features as post-free interiors; die-formed, weather-tight cover panels; fast, low-cost erection; quick, economical expansion. Pre-engineering and mass production hold down initial prices.

And you get a bonus of warehouse experience and understanding from your Butler Builder. He realizes the modern warehouse is more than mere shelter — that it can be a profitable management tool if consideration is given to such principles as storage methods, freight dock capacity, stacking heights, aisle mobility, stock patterning, and other factors. And because he is mindful of these principles, he can insure that they exercise their proper bearing on the planning and construction of your Butler warehouse.

So for the ideal warehouse, call on this ideal combination of building and builder. Contact your Butler Builder for complete information.



Colorful brochure details many of the principles of warehouse planning and construction. Write, or ask your Butler Builder, for a copy. And ask to see the film, "Your Warehouse—A Profitable Management Tool."

See the yellow pages of your phone book for name of your Butler Builder.



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Manufacturers of Steel Buildings • Oil Equipment • Farm Equipment • Dry Cleaners Equipment • Outdoor Advertising Equipment • Special Products
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Circle No. 15 on Card, Facing Page 69, for more information

DISTRIBUTION AGE

now it can be cold



all the way

From far western points to eastern destinations . . . from fields and orchards to markets . . . perishable products shipped in refrigerator cars are kept in perfect condition all along the U.P. route.

There are new P.F.E. mechanical icing facilities at Ogden, Utah . . . Laramie, Wyoming . . . Kansas City, Missouri and Council Bluffs, Iowa.

At these strategically located points, entire trains are frequently re-iced in less than thirty minutes and speeded on their way.

* * *

Pacific Fruit Express is jointly owned by the Union Pacific and Southern Pacific railroads.

UNION PACIFIC RAILROAD

STRUCTO RACKING



LIFTER
FOR 500 TO 1000 LBS.
For quick easy stacking of loads



ELECTRIC HYDRAULIC LIFT TABLE
For leveling sheet steel or dies at shears or press.



"FOUR POSTER"
Electric Hydraulic lifter for heavy loads




PORTABLE LEVELER
For use in loading and unloading when dock is not available


EASY VERTICAL LIFTING



SMOOTH HORIZONTAL ROLLING




No. 6-807-195



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CASTERS



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CONVEYOR
Aluminum or steel skate wheel or roller gravity conveyor



LIFT JACK TRUCK
No. 6712



DRUM HANDLING TRUCK
No. 6055



IN LINE TRUCK
No. 7010

save valuable floor space...
reduce expensive man hours...
cut maintenance costs with the

COLSON HYDRAULIC PALLET TRUCKS

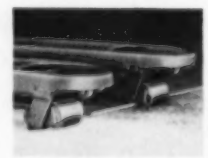


SAVE SPACE!
Only 16" longer than fork length when raised (18 1/2" lowered) 4000 and 6000 lb. capacities permit higher pallet loading.

SAVE TIME!
Every stroke a power stroke.—Toggle Booster Wheels avoid "skating" empty pallets.

SAVE WORK!
10" wheels move easier—steer better 25 lb. effort on pump handle raises loads

SAVE MONEY!
Easy opening "jack knife" head construction allows quick, easy maintenance. Sealed ball bearings in all wheels, lubricated for life.



Tandem articulated rear load wheels move loads easier over rough floors, bridge plates, and dock boards.

The Colson Leverlifts are perfect for crowded floor areas and rail cars where the use of power equipment is prevented. They are an ideal supplement for short hauls and "spotting" loads. Choose from a complete line of single or double faced pallets or skid lift trucks.

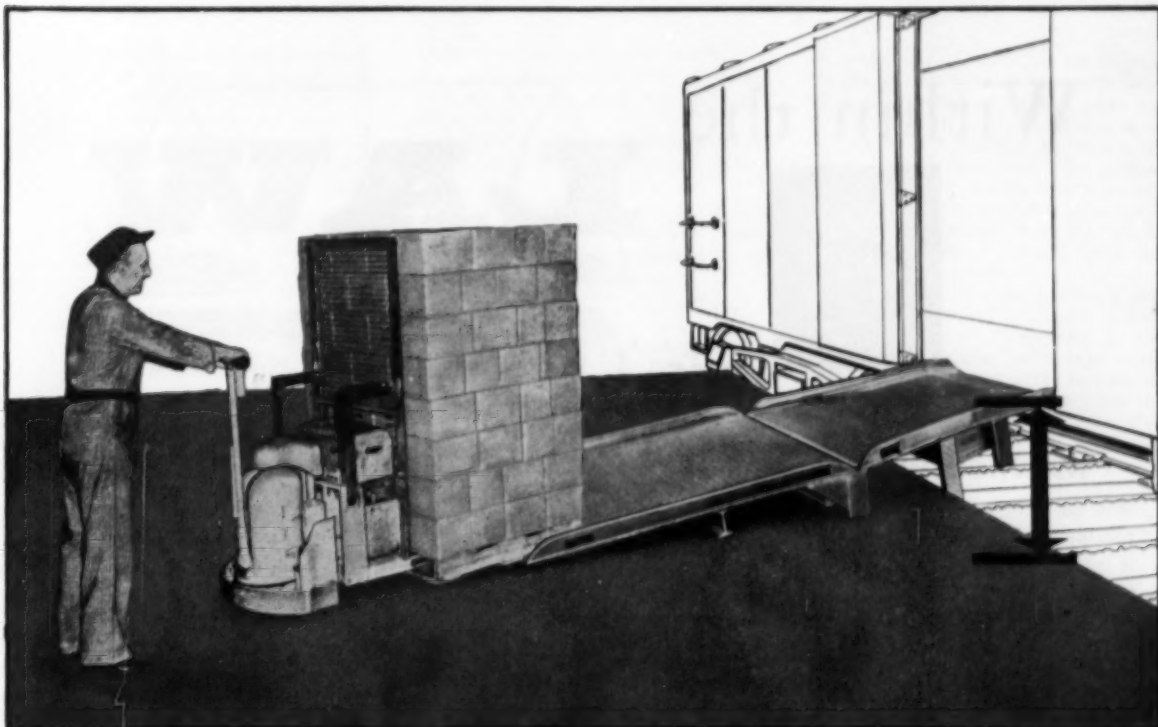
Use Colson's Material Handling Consultants for every handling problem

Write or phone for recommendation by specialists
The Colson Corporation • General Offices, Elyria, Ohio
Factories in Elyria, Boston, Toronto



Circle No. 16 on Card, Facing Page 69, for more information

DISTRIBUTION AGE



Magcoa Ramp-Dockboard with angle curbing solves two vexing reefer car loading problems: height differential and narrow door-opening.

Solve low-rail-dock and narrow-door problems with Magcoa Magnesium Ramp-Dockboards

You know this problem: What to do when your dock is considerably lower than the floor of certain railroad cars, especially refrigerator cars? It's a common problem.

Your local Magcoa Representative can help you solve it by furnishing a Ramp-Dockboard Combination which converts the height difference into a long, smooth grade. No chance for even low-under-clearance pallet trucks to get stuck.

Each section—the Ramp and the Dockboard—can be moved and positioned by one man. A long, one-piece board would have been difficult to handle. A short unit would have resulted in too steep a grade, with resulting underclearance problems. This way—the Magcoa way—your low-dock, high-car loading problem is solved easily . . . and safely.

When the height difference is less than the height of the Ramp, the Dockboard can be used alone.

Solves The Narrow-Door Problem, Too—This, too, *used to be* a major problem: how to get a low-lift pallet truck with a maximum-width pallet load through the narrow door-opening of a refrigerator car. (See Fig. 1). The low-lift trucks could not raise the pallets high enough to clear the quarter-round safety curbs. Magcoa solves the problem by using angle curbing at the car-end of the Dock-



Fig. 1



Fig. 2

board. (See Fig. 2). This satisfies both the underclearance and side-clearance requirements; permits maximum safe use of the refrigerator car door opening. Exclusive Magcoa quarter-round safety curbing is used for the balance of the curb.

Light-weight, Heavy-duty Magnesium—Every Magcoa Dockboard is constructed of magnesium, the lightest of structural metals. Every Magcoa Dockboard has the patented hand holds and other safety features which have made Magcoa Dockboards famous.

Other Loading Problems? As illustrated by the case above, it's standard procedure for Magcoa Representatives to approach the *whole* problem . . . and to help you get equipment which solves the whole problem, not merely one part of it.

What's Your Loading Problem? Are you bothered by a low rail dock? A low truck dock? A narrow, congested dock? Inefficient loading from

ground level? Spilling or damaging loads? Planning the dock for a new plant or warehouse? Modernizing an old dock? Switching to higher-capacity lift trucks or pallet trucks?

Whatever the loading problem, the odds are 1000 to 1 that your local Magcoa Representative has encountered it and solved it before.

A Suggestion: Send for our free new bulletin, "What to do about Difficult Docks." It's loaded with practical, helpful ideas.

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☐ Please send "Difficult Docks" bulletin

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Within the



By Leo T. Parker Legal Consultant, Distribution Age

WAREHOUSING

Will notification printed on receipt protect warehouseman if merchandise is stolen, etc.?

A reader inquires when and under what circumstances a notification printed on a warehouse receipt or contract will protect the warehouseman against future losses when stored merchandise is stolen, destroyed or damaged.

First, it is important to realize that the higher courts very consistently hold that no notification is valid which is designed to relieve the warehouseman from liability for loss of or damage to stored goods caused by negligence of the warehouseman or his employees. With respect to other kinds of printed notifications in contracts, billheads, receipts, letterheads or delivery sheets, the law is as follows: If the notification is printed in type the same or larger than other regular type in a written contract signed by both parties it is valid and enforceable. On the other hand, if the notification is on a letter or billhead, order blank, or delivery sheet and the notification is not specially referred to or called to the attention of the other party, the notification is not valid because it is not considered as being a part of the final contract between the parties. See the leading case of *C— v. M— Benz Co.*, 39 P. (2d) 496.

Is warehouseman liable to insurance company for damage caused by his negligence?

Recently a higher court held that if a warehouseman's negligence caused destruction of stored goods he is liable to an insurance company which paid the loss to the owner of the destroyed goods.

For illustration, in *A— Truckers Assn. v. W— Fire Insurance Co.*, 218 Fed. (2d) 461, the testimony showed facts, as follows: The G— Mfg. Co., bailor, stored a large quantity of yarn in a warehouse owned and operated by the A— Truckers Assn. The bailor insured the yarn, against

loss by fire, with the W— Fire Insurance Co.

Further testimony showed that the A— Truckers Assn. operated a cotton gin, which was in the process of ginning cotton and which was in close proximity to the warehouse, being separated therefrom by a 56-ft lot. The warehouse was of brick, covered with a fireproof roof, and the entrances had metal doors on rollers, and opened or closed by sliding parallel to the wall. The testimony showed that in the process of ginning cotton the gin discharged inflammable waste material on the lot between the gin and the warehouse. A fire occurred in the lot between the gin and the warehouse, the flames of which traveled from the direction of the gin toward the warehouse. As a result of the fire, the rayon yarn stored in the warehouse was damaged by fire and water. The W— Fire Insurance Co. paid the loss amounting to \$7,417.08 to the bailor and then sued the A— Truckers Assn., the warehouseman, to recover this amount. In holding the warehouseman fully liable, the higher court said:

"The defendant (warehouseman) was negligent in permitting this inflammable waste material to accumulate in large quantities extending across the lot from the gin and up against the wall and door of the warehouse, and the damage to the rayon yarn was the proximate result of such negligence. Appellant (warehouseman) was a bailee for hire and it was required to exercise reasonable care to protect the rayon from fire."

Another important point of law decided by this court is that irrespective of the small or unprofitable amount of storage fees charged by the warehouseman, he is liable for loss or damage to stored goods caused by his negligence. In this case the counsel for the A— Truckers Assn., warehouseman, argued that there could be no liability because the warehouseman permitted G— Mfg. Co. to store the rayon yarn in its warehouse for the convenience of the bailor who paid only 5¢ per bale, the cost of moving the rayon, and that

nothing was actually paid to the warehouseman as storage charges. In this respect, the higher court said:

"We agree with the trial judge that appellee (A— Truckers Assn.) was a bailee for hire and not a gratuitous bailee. A person becomes a bailee for hire when he takes property into his care and custody for a compensation. The nature and amount of the compensation are immaterial. The real question is, was the contract made for a consideration? If so, then the defendant was liable for the want of ordinary care."

For comparison, see *A— Sales & Service v. B—*, 49 So. (2d) 144. This court held:

"It is the rule that this duty to exercise reasonable care extends not only to the means employed to prevent a fire, but also to the means and agency used to arrest the progress of a fire after it is once started . . . The question of reasonable care is to be determined from all the circumstances."

Does seller of warehouse remain liable for destruction or damage to stored goods?

A few weeks ago I received a letter from a warehouseman who sold his warehouse business. He wants to know what he must do in order to be relieved from all future liability for destruction or damage to goods stored in the warehouse while he owned it.

The higher courts consistently hold that all warehousemen owe a legal duty to exercise "ordinary care" to protect their customers and patrons against loss, damage and destruction of stored goods. This legal duty cannot be avoided ordinarily even if the warehouseman sells his business and retires from the warehouse business.

For illustration, in the leading case of *McG— v. R—*, 233 S. W. (2d) 344, the testimony showed that a man named McG— owned and operated a warehouse business. One R— stored his merchandise in the warehouse with McG— and received a "non-Negotiable warehouse receipt." Soon afterward McG— sold the

warehouse business, and the purchaser continued to operate the business at the same location. When McG— sold his warehouse business he gave no notice of this sale to R—. Hence, R— did not know that the business control of the warehouse had changed hands.

R— became delinquent in payment of the storage bill and several months later the new warehouseman, because of failure of R— to pay accumulated storage charges, foreclosed the statutory warehouseman's lien on R—'s goods and sold them.

R— sued McG— personally for the full value of his goods and based his suit on McG—'s sale of the warehouse-storage business without giving him notice of such sale and, also, for illegal sale of his goods by the new warehouseman without giving him advance notice of such sale, as required by law. The higher court held McG— personally liable to R— for full value of his goods and said:

"The sale of the business without the knowledge or consent of the owner in no way lessens his obligations to return the goods upon demand and payment of all legal charges. The transfer of the business imposed upon them (new warehouseman) the statutory liability for safekeeping of the stored goods and any failure of duty so imposed carries with it their liability to the assignor McG—, and to the owner of the goods."

An important lesson learned by this leading higher court decision is: A warehouseman who sells his warehouse, or the business thereof, should immediately write every owner of goods stored in the warehouse. In this letter the warehouseman should explain to whom he has sold his warehouse business, and state that all owners of goods stored therein must either remove the goods from storage; assign the storage contract to the new owner; or make a separate contract of storage with the new purchaser of the warehouse business. In these letters the warehouseman should send his patrons statements of their accounts to date, and request immediate payment.

Is a state law valid which fixes a warehouseman's charges?

Another question often presented in the past by readers is: "Is a state law valid which fixes a warehouseman's charges?"

The answer is, generally, yes.

For example, in the leading case of T— v. Y—, 57 S. C. 842, a suit was filed by a warehouseman to restrain the enforcement of a state law fixing maximum charges for handling and selling specified merchandise.

In this case the warehouse charges were based upon the commissions that the warehouseman received for ser-

vices; the fees paid to the auctioneers who sold the merchandise at public auction; and the weighing and handling fees.

In holding the law valid the Supreme Court of the United States said:

"... the Georgia statute deals with a local need, exercising the states protective power with respect to its own industry."

How can warehouseman prevent being held liable for moth damage to rugs, furniture, etc.?

"Can you give me the law on what steps a warehouseman must take to prevent being held liable for moth damages to rugs? If a warehouseman agrees to 'clean' stored rugs, furniture and the like may he be liable if such cleaned articles afterward are damaged by moths while in storage?" One of the leading authorities on this subject states in part, as follows:

"In the first place it is important to know that the term 'cleaned,' among many experienced rug cleaners and warehousemen means dust cleaning only, and dust cleaning does not eliminate moths. On the other hand, shampooing or washing when done by an experienced rug cleaner does eliminate moths as well as other undesirable things." Therefore, a rug that is "cleaned" (dust cleaned only) may contain moth life in some form or other and later the rug will become moth eaten. In other words "cleaned" in this sense is of no practical value to eliminate moths, and rugs that are merely rolled up and wrapped and placed in storage invite trouble for the warehouseman.

Rugs that are shampooed or washed properly are free from moth life and

if promptly placed in mothproof vaults will not develop any moth damage. Shampooed or washed rugs are practically just as susceptible to moth infestation, if exposed to moths, as are rugs that have been dust cleaned only. In other words, even though shampooing or washing eliminates moth life the process does not "moth-proof" the rugs or make them immune to moth attack.

Therefore, it is quite apparent that a warehouseman, who agrees merely to "clean" rugs, furniture, or the like, may be faced with legal controversy as to the kind of cleaning he actually agreed to do, in the event the articles are damaged by moths. For this reason it is advisable to specify in the contract with the owner whether the cleaning shall be "dust cleaning," or "shampooed or washed," or cleaned by one of these processes and then proofed against moths either by washing in a moth preventive, solution or by depositing in a mothproof vault. Obviously, no guarantee against damage by moths can be safely made by warehousemen who accept articles for ordinary cleaning and ordinary storage, and in order to eliminate suits for damages the contract with the customer should clearly state these facts.

For comparison, see the leading case of H— v. C— Warehouse Co., 7 La. App. 342. In this case the higher court refused to hold a warehouseman liable for moth damage to stored rugs. The warehouseman proved that before the rugs were placed in storage he sprayed the walls and floors of the storage room with a disinfectant; unrolled the rugs and sprayed them, put moth balls on the rugs; rerolled them; and wrapped the rugs in heavy paper.

The court held that the warehouseman exercised reasonable care to protect the rugs against damage by moths. The same method is applicable to stuffed furniture.

For further comparison see the following cases: F— Storage, 271 Pac. 532; W— v. K—, 249 Ill. App. 28; and T— Warehouse Co., 45 S. W. (2d) 563. The courts held that a warehouseman cannot by contract, or receipt limitation clauses, relieve himself from liability for moth or other damage, loss or injury to stored goods caused by his own negligence.

Therefore, irrespective of a clause in a warehouse receipt which relieves a warehouseman from moth damage liability, the warehouseman is required by law to exercise an "ordinary" degree of care to safeguard the stored goods.

Other higher courts hold that a warehouseman exercises "ordinary care" by employing a dependable and experienced exterminating company to use its modern and scientific methods and chemicals to exterminate moths and prevent damage to stored goods.

New Industrial Mart



Architect's drawing of a multi-million dollar "Industrial Mart" to be built on a 15-acre site strategically located in Washington, D. C. Announcement of the project was made by The Washington Board of Trade's Economic Development Committee. The site chosen, formerly known as The Heitmuller Tract, is in the northeast section of the city, only 10 minutes from the present heart of the nation's capital. The basic idea behind the development of the Mart is to encompass four of the more important facets of the city's industrial life—light manufacturing, distribution, exhibition, and storage



ONE Spare Ready-Power Unit Keeps a 10-Truck Fleet Working 24 Hours a Day!

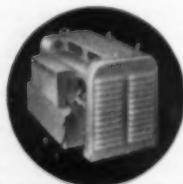
at West Virginia Pulp and Paper Company, Covington, Virginia



Quickly interchangeable Ready-Power gas-electric power units simplify the problem of full-time electric truck operation at West Virginia Pulp and Paper Company.

Various makes of fork trucks up to 8000 lbs. and platforms up to 6000 lbs. have all been converted to Ready-Power. Systematic rotation of power units, with one spare for preventive maintenance, has eliminated truck downtime due to power failure.

Why not use cost-cutting Ready-Power units on your trucks? There are gas-electric, diesel-electric and LPG-electric models for all electric truck makes and sizes. Write for information.



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Manufacturers of Gas and Diesel Engine-Driven Generators and Air Conditioning Units; Gas and Diesel-Electric Power Units for Industrial Trucks

Circle No. 18 on Card, Facing Page 69, for more information

Men . . .

(Continued from Page 22)

maintenance and operations; M. C. Wilkin, sales; Kenneth T. Sheehy, traffic; Donn D. McMorris, terminal operations—promoted to vice presidents, **Denver Chicago Trucking Co.**, Denver, Colo.

B. F. Wheeler, Jr.—new owner and president, **Green Line Trucking**, Trenton, Mich.

John L. McCaffrey—elected chairman of the Board of Directors and chief executive officer of **International Harvester Co.**, Chicago, Ill. Peter V. Moulder—elected president. Frank W. Jenks and Harry O. Bercher—elected executive vice presidents.

Norman Rovine—appointed vice president, **Branch Motor Express Co.**, New York, N. Y.

Howard P. Strother—appointed manager at Los Angeles; Fred H. Regan—named manager at San Francisco, **White Motor Co.**, Cleveland, Ohio.

J. L. Pfeiffer—new executive vice president, **Empire State Truck Terminal Co.**, Garden State Truck Terminal Corp. and Terminal Cartage Corp., New York, N. Y.

—Rail

J. W. Mahanay—new assistant to the vice president, traffic, **Frisco Railway**, St. Louis, Mo.

G. Howard Ingalls—assistant vice president, freight sales and service, at Detroit, **New York Central System**, New York, N. Y.



Robert W. Tackbary—appointed general manager, **Truck Train activities**, **Pennsylvania Railroad**, Philadelphia, Pa.

Harold A. Berry—named manager of purchases and stores, **Rock Island Lines**, Chicago, Ill.

J. P. Quinn—named traffic manager, **Chicago & Eastern Illinois Railroad**, New York, N. Y.

Robert C. Wood—elected to the Board of Directors, **Soo Line Railroad**, Minneapolis, Minn.

Warren R. Elsey—appointed vice president, purchases, stores and insurance, **Pennsylvania Railroad**, Philadelphia, Pa.

Fred Heimlicher, Jr.—promoted to freight traffic manager, the **Illinois Central Railroad**, Memphis, Tenn.; Jack H. Butridge—promoted to freight traffic manager, St. Louis, Mo.

C. H. Burnett—appointed superintendent of the **Nebraska Div.**, **Union**

Pacific Railroad, in Omaha.

Thomas L. Preston—elected vice president and general counsel in charge of the Law Department, A.A.R., Washington, D. C.

Raymond E. Novy—named controller, Monon Railroad, Chicago, Ill.

Materials Handling

John A. Matousek—named assistant to the president, Baker-Raulang Co., Cleveland, Ohio.

E. J. Dwyer—elected vice president, Electric Storage Battery Co., Philadelphia, Pa.



George A. Markell—appointed assistant sales manager, The Elwell-Parker Electric Co., Cleveland, Ohio.



Morton R. Godine (left) and Samuel B. Sheldon—named vice presidents, Market Forge Co., Everett, Mass.

John R. Titlow—elected director and vice president, Lamson-Mobilift Corp., Syracuse, N. Y.



E. T. Flanagan—elected to the Board of Directors, Fairbanks Co., New York, N. Y. He also is vice president-sales.

Robert L. Fairbank—named vice president, Towmotor Corp., Cleveland, Ohio.



Packing & Packaging



Paul H. Roberts—elected vice president—central sales, Hinde & Dauch Paper Co., Sandusky, O.

(Resume Reading on Page 27)

Always getting through!



Let B&O "baby" your LCL

Difficulties of "getting through" present few problems with B&O Time-Saver Service. You can count on unusually dependable delivery day in and day out. And B&O "babies" your LCL with utmost care . . . on fast, convenient schedules. That's why you're smart to ship via B&O Time-Saver.



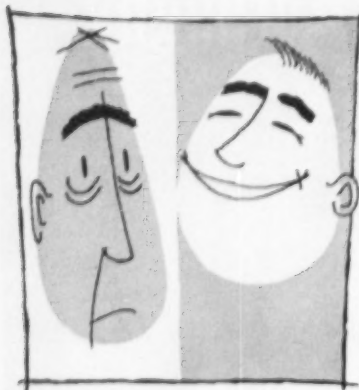
Ask our man!



Baltimore & Ohio Railroad

Those who know—use the B&O!

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Mr. Jones has no headaches—he knows San Francisco Warehouse will handle his storage and distribution problems on the West Coast! Save on your aspirin bills—contact us or our representatives today.

- 50 years as Pacemaker of Pacific Coast Warehouses
- Over 500,000 square feet storage area
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CHICAGO REPRESENTATIVE:

Distribution Service, Inc., 251 East Grand Avenue
Telephone: SUperior 7-7180

How to Save \$2.5 Billion . . .

(Continued from Page 55)

tices to property owners to eliminate rats, to correct unsanitary conditions, and to follow rat-proofing measures recommended by the Health Department. At periodic intervals thereafter, the block is examined for maintenance of the program.

Study of Habits

An important step in the development of any rodent control program is a working knowledge of rat habits. This information will accelerate extermination and minimize guess work in the preparation and placing of baits.

Rats usually leave their burrows only by night to search for food. Since they remain underground during daylight, a building may support hundreds or thousands of rats when few are ever seen. Rats do leave clues, however. Burrows can be detected along the sides of buildings, under sidewalks, under trash piles and near food supplies. Droppings and rat runways frequently can be found in buildings.

Rats dislike to cross open areas. A rat will hug walls and fence lines or establish a trail through high weeds. Once he begins using a certain route between his burrow and his food and water supply, he is unlikely to deviate from it. Eventually the grass and weeds will be worn away and the earth along the route will be packed into a path.

At indoor locations runways often may be identified by the discoloration of the baseboard or wall next to the floor. The rat's fur, repeatedly brushing against the surface, leaves an oily residue.

Bait Stations

Rodent control authorities recommend that permanent bait stations be established along both indoor and outdoor runways. Such a program will prevent re-infestation, and keep the rodent problem at a minimum.

Rat infestations generally seem to become more serious in cold

weather because the rats are driven inside by falling temperatures. This is not particularly true of food warehouses, however. The availability of food in such buildings makes them a desirable rodent target the year around.

Surveys in this field have indicated that bait stations sometimes fail to produce results because persons placing the bait spot it at points convenient to themselves, rather than to the rats. It should be remembered that rats dislike to cross open areas, even for food.

Control of rats in food warehouses is a knottier problem because of the competition food gives the bait stations. Many warehousemen have sidestepped this obstacle by making the bait more convenient and attractive to the rats than stored food. This is accomplished by installing a large number of bait stations so that at least one will be close to every part of the building. A small quantity of corn oil and sugar is added to the bait.

Good results have been obtained in many locations by placing a shallow pan of water near every bait station. Since rats become thirsty while eating grain foods, the presence of the water may attract them to the bait station. •

(Resume Reading on Page 56)

Award Winner



The Sixth Annual Industrial Design Institute Award has been presented to Jon W. Hauser, St. Charles, Ill., for his design work on this model HH Payloader, tractor-shovel manufactured by The Frank G. Hough Co., Libertyville, Ill. Walter C. Granville, chairman of the IDI Award Program, in making the presentation, announced that this is the first time that a piece of equipment of this type had ever been selected for design honors.

... **\$19,000,000**

(Continued from Page 39)

fire department and its equipment. Maintenance of the yards should follow good general housekeeping practices, such as keeping the weeds cut, eliminating smoking, establishing proper means of fire detection, and so on.

Modernization

In conclusion, it is recognized that what the warehousing industry considers to be the most advanced methods of storage is, at present, in direct opposition to good fire protection standards. However, they are not irresolvable. If we are to accept the need for heavily stocked warehouses and large areas in which the fork-lift truck must operate, considerable protection should accompany the design.

For example, greater capacity sprinkler systems and water supplies for the added burden of increased fire load should be provided. Greater attention should be given to adequate first-aid fire extinguishers and to automatic detection devices.

Efficiency vs. Safety

Above all, it should be borne in mind, that mechanical storage equipment and the use of pallets—while adding to the efficiency of an operation—increase fire protection and fire fighting problems. In the past, goods were stored in a solid pile and fires attacked a load from the perimeters. The use of pallets, now creates vertical and horizontal flues, increasing danger to the entire pile as the fire can travel quickly through it.

The record is clear: Over a period of years, large warehouse fires were occurring with the frequency of one per week and individual losses ranging from \$100,000 to \$5,000,000. Fires are becoming larger, the risks are greater, insurance premiums are increasing. On the other hand, the new NFPA standards and the insurance companies are ready to help. The problem can be solved. •

Photograph courtesy of Philadelphia Fire Dept.
(Resume Reading on Page 40)

Circle No. 19 on Card, Facing Page 69, for more information

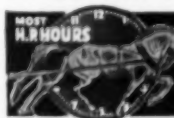


A WISCONSIN HEAVY-DUTY *Air-Cooled* ENGINE Carries the Load...

For many years Wisconsin Engines have been specified as "original equipment" on Hyster Lift Trucks because these fine engines meet most fully the exacting demands of lift truck service. Tapered roller bearings at both ends of the crankshaft; dust-proof starter, distributor and generator for long life; pump-circulated spray lubrication; mechanically actuated fuel pump with metal sediment bowl; aluminum alloy pistons... these and many other

features, including remarkably efficient AIR-COOLING at all temperatures from sub-zero to 140° F., are assurance of dependable service, low-cost maintenance and long engine life.

Be guided by the good judgment of the people who "know the score" when it comes to matching engine power to fit the machine and the job it has to do. Specify "Wisconsin Engine Power" for your material handling equipment. Write for Bulletin S-188.



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World's Largest Builders of Heavy-Duty Air-Cooled Engines
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PENCO LIGHT WEIGHT MAGNESIUM TRUCK RAMPS

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SAFETY

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UNLOADING NEED

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ALL WELDED STURDY CONSTRUCTION

Built like a bridge, heavy
Side & Center Trusses

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- Saves Tires & Equipment
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- Full range locking device
- Full length hand grips
- Saves man power; reduces accidents; speeds-up all dock operations



COAST TO COAST DISTRIBUTORS

PENCO ENGINEERING CO.

25 California Street, San Francisco 11

Circle No. 20 on Card, Facing Page 69, for more information

... European Bulk Storage

(Continued from Page 61)

structural steel-work. The walls of the sugar containers are in prestressed concrete, while the floors, the basements, and the elevator tower are in reinforced concrete.

Of 8-in thick prestressed concrete, the walls are provided with a light mild steel reinforcement for wind and other stresses during construction, for vertical bending moments during stressing, and for temperature stresses in the final condition of the walls. Because of the large diameter of the silos, the full height of the column of sugar contributes to the horizontal thrust on the walls at the base.

British Grain Silos

A new universal silo storage system has been developed in Britain which can be adapted for use inside existing buildings, under dutch barns, or in the open.

It can be used whether there is a concrete, brick or wooden floor, or no floor at all.

Portable and Collapsible

Capable of being rolled up and stacked away at the end of the season, the silo walls consist of lengths of welded, high-tensile wire mesh lined on the inside with hessian cloth. From the ground level to a height of 2 ft steel sheet is attached to the silo to keep out rodents. If required, the bin also can be fitted with a metal, bituminised fabric or plastic bottom and it can be made waterproof. A tarpaulin cover is available, and a ring foundation for outside erection.

Although the bin can be made in any size to fit into existing buildings, it normally is made in a standard size of about 2,500-cu ft capacity. This size accommodates 50 tons of grain.

It consists of two lengths of wire mesh, each about 50 ft long and 7 ft, 3 in wide. The opposite ends of each section are joined by a connecting rod to form a ring. One ring then is fitted inside the other to form a bin about 15 ft in diameter and 14 ft in height.

The hessian lining is specially treated to render it rot-proof and insect repellent. Twenty such bins, rolled for transit and capable of storing 1,000 tons of grain, can be moved on one truck.

Temporary or Permanent

In dry climates the bins form ideal temporary storage in the open either for the harvest peak on the farm or at railhead stores. For long term storage they are better housed in a permanent building. A standard grain store has been specially designed for this purpose, equipped with patent ventilators, plastic glazing and sliding doors. It holds 10 standard storage bins, and can be adapted for fumigation purposes if required. •

(Resume Reading on Page 62)

Best Quality—Best Price

**RACK TURNABOUT
HYDRAULIC
PALLET TRUCKS**

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- Delivery from stock
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- Guaranteed one year

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WHERE ARE THE LABELS?

If you like labels for addressing containers, but would like to cut the time and labor it takes to address and apply them—here's a good idea. You can print facsimile labels directly on cartons with a Weber handprinter and Kustom Kut Stencil. Stencils are die-cut with facsimile of your label. All you do is type in ship-to address and attach to printer. Good for product identification marking too. Fast, neat, systematic and inexpensive. Write for full details on the Weber Facsimile Label System.

Weber

Weber Marking Systems
Dept. 20-H,
Div. of Weber Addressing Machine Co.
Mount Prospect, Illinois

Circle No. 21 on Card, Facing Page 69, for more information

Circle No. 22 on Card, Facing Page 69, for more information

DISTRIBUTION AGE

... Modern

(Continued from Page 50)

play space, and storage operations provided by the modern warehouses.

Acceptance of the public warehouse by industry is typified by the recent remarks of C. S. Connolly, of the Carnation Co. Mr. Connolly, who is vice president-traffic, said, "Carnation Co. for years has recognized the importance of public warehouses as a means of getting our product to the customer when the customer wants the product. Our business is predominantly carload, with direct service to the customer.

"Some of our products, however, require immediate movement from spot stocks to the customer, in less-carload lots. If it were not for public warehouses, we could not adequately serve these non-carload customers. To lose the availability of this service would be ruinous." •

(Resume Reading on Page 51)

Traffic Department Organization

Stressing the growing importance of the traffic manager in industry, Dr. John H. Frederick points out that transportation generally is the largest single cost item left in the area of controllable costs.

Dr. Frederick, who is transportation consultant for DISTRIBUTION AGE, makes this observation in a new book, *Traffic Department Organization*, to be published next month. Taking 27¢ out of every sales dollar, transportation today is directly related to sales, production, research, purchasing and other top policy corporate matters, according to Dr. Frederick.

In this first book on the subject, the author uses actual case histories from such blue-chip firms as Sears, Roebuck; H. J. Heinz; National Distillers; American Chain & Cable; Kaiser Aluminum & Chemical; Maytag; Koppers; Remington Rand and others. Through these case histories Dr. Frederick shows how a new concept of traffic management has pared costs and produced savings—not only in freight movement, but also in other areas of business.

Traffic Department Organization is being published by Chilton Co. in cooperation with DISTRIBUTION AGE. The 160-page, illustrated book has been priced at \$6. Information can be obtained by writing: The Editor, DISTRIBUTION AGE, Chestnut & 56th Sts., Philadelphia 39, Pa.



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POKE-PAK COSTS SO LITTLE IT'S EXPENDABLE



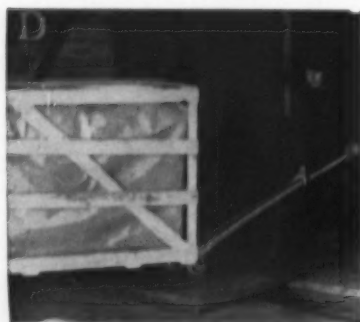
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THE MICRO LEVER DOLLY . . .

Cuts moving time in half on large bulky items. Works singly or in pairs.

Position of wheels permits the lift blade to pry under objects flat to the floor.

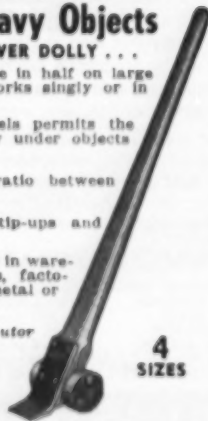
High leverage ratio between power and load.

No danger of tip-ups and falls.

Thousands in use in warehouses, terminals, factories. Choice of metal or rubber wheels.

See your distributor or write

MICRON, INC.
Dept. D.
Bettendorf, Ia.



4 SIZES

Circle 24 on Card Facing Page 69

Problems of Relocation . . .

(Continued from Page 54)

7. Temporarily locating new item receipts in warehouse bin sections;

8. Obtaining new movement cards to replace lost cards;

9. Actions to take when certain bin openings were empty;

10. Movement of bin items from bulk closed or open storage areas;

11. Relocating items placed in temporary assignment rows;

12. Procedures for reflecting bin location changes in files;

13. Assignment of new bin openings.

Each of the above sections included from 11 to 123 separate steps, all to be followed in sequence.

Job Orientation

One of the first big problems faced by our personnel was one of orientation. We had to learn details of the old system, as well as military language and standard operating procedures. Briefing sessions were many, and in some instances, actual training classes were conducted.

In these sessions, for example, we learned that in the eyes of the Engineers the term rerehousing means unstacking, unpalletizing, and segregating stock; moving and/or repalletizing and restacking stock in designated locations; and certain boxing or reboxing, as described below.

As the principal contractor, Gallagher was required to furnish all labor, equipment, material, and tools, with certain exceptions. We used eight fork-lift trucks to move the goods, five towing tractors, 120 four-wheel warehouse trucks, and a single tractor-trailer.

Using our own key people with local labor, we operated on two shifts. Each day's work was blue-printed for each shift before the day began. A maintenance man was kept on duty at all times and, wherever possible, equipment was rotated between shifts to make allowance for maintenance downtime.

The entire job was blue-printed

before the operation began, with daily and monthly quotas (see Phasing and Progress Charts). Our men moved an average of between 38 and 221 tons a day, depending on original location, destination, condition of goods, amount of repalletizing and reboxing required, etc. Government personnel inventoried the stock as each section was moved. Charts were kept at Columbus and in Philadelphia, in our general office. The Philadelphia charts were kept up to date by weekly reports from Columbus.

Rewarehousing Bulk Stock

The bulk stock to be rerehoused consists of spare parts and sub-assemblies for maintenance of equipment, such as construction and earth moving machinery. Before the move, the stock was stacked either on warehouse pallets suitable for fork truck handling, or on dunnage. For the most part the stock was packed in wooden boxes, crates, fibreboard cartons, and box pallets.

Bulk stocks stored in 15 different warehouse locations and open storage were rerehoused as follows:

Quantity Tons	New Location	Avg. Dist. Moved Feet
23,000	Whse 27 & 30	3,800
3,200	Open storage	2,000
46,385	Whse 42	600
5,000	Shed stge	1,500
4,100	Street stge	1,500

Since the above data were estimated before the move, certain discrepancies arose. The total tonnage, for example, exceeded that estimated by some 10,000 tons. The basic formula, however, remained the same.

Gallagher was required to box or rebox bulk stock in instances where the box or carton had been damaged in storage or was unusable for other purposes. The original contract estimated that reboxing would amount to not more than two per cent of the total tonnage. Actually, however, tonnage that required reboxing was considerably higher.

All such items had to be reboxed in accordance with Military Specifications JAN-B-106A, Packaging and Packing for Overseas Shipment. Not more than one item was placed in each individual box. The net weight of boxes could not exceed 200 lb, except in the case of items weighing more than 200 lb per single unit.

All old markings on boxes had to be obliterated in conformance with Army Specification No. 2-199, and new markings were made on standard requirements.

Repalletization

Pallets and box pallets discovered to be in unserviceable condition were discarded, and the contractor was required to repalletize the material on new pallets provided by the government.

Palletization is used for both bin back-up and bulk storage. Pallet sizes in use at the Depot include 32x40, 36x48, 48x48 and 50x50 in. The first two sizes mentioned are the two in most common usage.

The bin tiers to be erected were new, in knocked-down form, and stored on the Depot. Some 11,000 tiers had to be erected, each tier measuring 7 ft, 3 in. high, 36 in. wide, by either 12, 18 or 24 in. deep. Each tier has seven levels, and from 8 to 27 dividers to regulate the size of bin openings. We erected the bins with different spacings of bin dividers to form 11 types of bin tiers.

All tiers were numbered and labeled before the stock was moved. Close to 80,000 bin level markers, over 11,000 bin tier markers, 1,600 bin row markers, and almost 200,000 bin opening labels were affixed.

The 155,000 line items rebinned approximately 5,500 tons. It was the contractor's responsibility to keep the stocks from being mixed or damaged or losing their identity, and to provide suitable containers to keep the stocks segregated by manufacturer's code and part number during moving and rebinning.

Briefly, the new integrated system at Columbus is built around a 4,000-ft chain-in-floor truck dragging conveyor, a mile long

roller and belt conveyor line, the 192,600-opening bin section, and a greatly simplified bin back-up and reserve storage system.

The system was designed so that all operations could be performed on a production line basis.

Goods are received by rail and truck and transferred to a double-horseshoe holding area with 28-ft racks arranged in three tiers. From the holding area, the goods are moved via the truck-dragging conveyor to the bin section. Colored tags identify each truck load of goods and denote its destination.

The sequence followed runs from receiving, to purification, to care and preservation, to the bin area, to care and preservation, to mail, packaging, salvage, and shipping.

The chain-in-floor conveyor moves at 80 fpm, and incorporates a dual dog for cart engagement every 15 ft. Three types of truck are used, all four-wheel, of 100-, 200-, and 500-lb capacities.

The mile-long conveyor includes powered roller and belt sections and some gravity roller sections. All of the sequence operations described are built into the line.

In addition to proving the practicality of industry relocation, this giant rewarehousing project served as one of the first successful experiments in the move to "get the government out of business."

Before advertising for bids, the military made its own estimate on the job. Then, on a competitive basis, sealed bids were accepted from approximately 10 private firms. The difference between the military figure and the lowest outside bid prompted the decision to award the contract to private industry.

Success was indicated from two sources:

1. Our firm enjoyed a thoroughly satisfactory and profitable contract;

2. And, more important, the military succeeded in completing the project in the time allotted, at a lower cost than had been anticipated, and in accordance with highest government standards.*

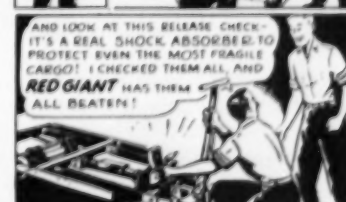
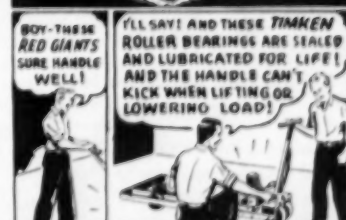
(Resume Reading on Page 55)

what are you doing about
your small shipment problem?



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THE
MAN
FROM
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CENTRAL
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Circle 25 on Card Facing Page 69

Modern Storage Facilities FOR RENT

Bins and tanks for bulk grain or other storage, conveyORIZED, with total capacity of 1,000,000 bushels and 10,000 tons liquid capacity with pumping facilities.

PLUS

420' covered pier with 27,300 sq. ft. floor space on the Kill van Kull, N. Y. Harbor, Pier 3, Constable Hook, Bayonne, N. J. Equipped with 100 ton per hour blowers for loading.

PLUS

Concrete and tile block building, 2-story, 34,000 sq. ft., 20' ceiling height; sprinklered, all power facilities, built new 1949.

Lehigh, Jersey Central and Pennsylvania Railroads service the property.

For further information and inspection appointment

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Metals Warehouses . . .

(Continued from Page 59)

A large metal fabricator contacted Eastern about one item in .040 gage which he was using at the rate of 50 tons a month, in five different widths. When he sat down with Eastern's engineering staff to work out the mill widths required to keep scrap loss at a minimum, they went over his entire production needs. After analyzing his products, the engineers determined that there were four different sizes totaling 30,000 lb a month in .036 gage, where a No. 3 temper would be just as suitable as a soft temper.

Eastern suggested regular .040 stock with one light pinch pass to .036. Thus the firm was able to supply the 30,000 lb needed, without it costing the customer anything for quantity or width extras. It achieved a much closer tolerance and better finish than mill sheet coil—at a saving of one and three-quarter cents a pound.

One incidental result of the pinch pass was to yield seven per cent more footage of material for each pound of raw stock, because of the close tolerance. This represented an additional one-half cent saving per pound.

Standardization

Another customer, a metal box manufacturer, had been buying four different sizes of steel in one gage from the mills. Because the sizes of steel were narrow, delivery was three to four months. When he switched to wider mill coils, delivered to Eastern, he got faster delivery and a lower price. In addition, he ordered a width which permitted the cut-out of all four sizes with a scrap loss of only nine-tenths of one per cent. He has since been able to order the poundages he wants, slit as needed. His delivery time is standardized at four days or less, and his production is being scheduled much more accurately. Savings in storage and handling are substantial.

Two years ago Eastern started an expansion program which included the erection of a 17,000-sq

ft warehouse for steel and aluminum alone. In addition to a 48-in. slit, the one-story building contains 12 storage bays in three aisles of four each. Each bay holds 500 tons of steel, or approximately 180 coils arranged pyramidally.

Physically, Eastern devotes a relatively small percentage of its 67,000-sq ft to the storage of brass and copper coils and flats. This section however, is capable of storing half a million pounds in each of three racks. Brass flats and rods are palletized in the same area.

Wide aisles between the bays and around the storage racks allow maximum maneuverability for fork-lift trucks and hoists. A fifth of a mile of overhead track carries three electric cranes of 10-ton capacity through the three bays.

At the front end of the building is a street level truck entrance. At the rear there are sunken-level truck platforms for receiving and shipping. Both sections are reached by the overhead cranes. Three more interior loading truck platforms and one additional street level platform are in the older building. A glass-enclosed plant supervisor's office surveys the platforms and the shipping department.

Materials Handling

A few years ago, Eastern was forced to the conclusion that no available materials handling equipment suited its particular needs. While overhead cranes and fork trucks had eliminated most manual movement of heavy loads, there had not been equal improvements in handling equipment—generally grapples—at point of contact between crane or truck and storage bay or machine.

Eastern designed and built a line of grapples which were lighter and safer, more efficient, and more flexible than any available. For example, one all-purpose grapple weighs only 31 lb, but can handle a one-ton capacity.

Eastern now has special grapples which maintain a coil in a vertical position while it is being fed onto a machine arbor; lift a coil from a flat position for piling on skids; lift coils from the inside when they are palletized horizontally on a pallet, and turn coils from a horizontal to a vertical position, or back.

The last operation always has been a cause of high injury rates. Eastern's grapple solves this merely by changing the center of gravity of the coil. Weighing only 40 lb, it has a two-ton capacity.

The grapple which lifts coils from the inside weighs only 106 lb, has a 5,000 pound capacity, and permits one man to handle and stack coils with a space saving of up to 50 per cent.

Transport Bottleneck

One transportation bottleneck eliminated at Eastern has been loading. All flat metal, most rod, and a small amount of coil has to be crated. Eighty-five per cent has to be shipped on wooden skids. Almost everything ready for shipment has to go through the carpentry section.

At one time this caused a slowdown in the chain of operations. By the time the day's output was crated and labeled, it was too late to load. Loading had to wait until morning. This meant that trucks wouldn't start to roll before 9:30 a.m. This killed half a work day or more for the customer if he was waiting to start immediate fabrication of the material.

Split Shift

Eastern started a split-shift arrangement for the loading crew. Half the crew begins work each day two and one-half hours later, and works that much longer. Now trucks are ready to move at 8 a.m. This provides an important hour and one-half leeway for the customer.

Eastern has found that customer service is more than simple customer courtesy and a chance to turn a small profit—it is an absolute necessity for the metals warehouseman who wants to meet competition. •

(Resume Reading on Page 60)

YOU CAN STACK OR SHIP ANYTHING ON EMI RACKS!



Equipment Manufacturing storage racks that stack, cut time and handling costs, protect workers and stock, and speed inventory. EMI racks are made of strong, welded tubular steel and are adjustable to fit any space or unit load. Special racks designed to your specifications.

Field engineering service on any installation. Before you decide on a new warehouse, additional storage space or the purchase of stacking equipment write for our new catalog.



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Catalog.



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BOLTLESS PALLET RACKS



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STACKING BOXES



EQUIPMENT MFG. INC.

21542 HOOVER ROAD • DETROIT 5, MICHIGAN
Materials Handling Equipment Stacking Racks for Industry

Circle No. 26 on Card, Facing Page 69, for more information

Section 22—Staley . . .

(Continued from Page 72)

ciples under which the carriers are approached in seeking readjustments in rates were abandoned in favor of the auction block.

In addition, with this cut-throat rate making it is not necessary to publish these rates. At least one agency makes a practice of keeping the quotations secret until after the routing has been set.

Carriers Not Blameless

All of the blame or criticism for this practice should not be placed on the shoulders of government representatives. Many carriers learn of anticipated movements and approach representatives of government agencies and privately offer a secret reduced rate in order to secure a certain piece of tonnage. In hearings before the ICC and in the files of the Hoover Commission there is evidence of this type secrecy. There also is evidence of certain government agencies holding out special inducements in the form of additional traffic if one carrier will get out and cut the other carrier's throat.

To the credit of the Department of Defense, and I think this may well be true of other agencies, efforts have been made to curb this unscrupulous bidding for traffic by one carrier against another.

During time of war or a national emergency there may be reasons why the military services need special rates in a hurry for the movement of troops or military traffic. It is hard, however, for ordinary shippers to understand why the government, which is supposed to set an example and live up to the ideal and principles which have motivated the regulation of transportation, should get a special or secret rate for a civilian agency.

For example, in the movement of aluminum ingots from points in Texas to Davenport, Ia., why should the government have a lower rate than private companies shipping between the same points?

On Oct. 18, 1954, in I. & S. Docket No. 6204 the ICC said the minimum rate by rail should be \$13.67 per ton. This must be paid by Reynolds Metals and Aluminum Co. of America for the movement of their pig aluminum from Texas to Davenport. On the other hand, General Services Administration has a rate of \$10.50, or \$2.17 a ton less than the commercial rate.

In the same train from the same origins in Texas to the same destination in Iowa, from the same smelter to the same delivery plant for stock-piling purposes, carloads of aluminum will move at different rates, the government getting a special rate. This special rate is not published or filed with the ICC. It is a secret rate. The carriers do not deny its existence.

Government Objections

During the many heated discussions about modification or repeal of the free or reduced rates provisions of Section 22, some government agencies have expressed devious and fantastically-conceived objections.

One objection is that government operations are not comparable with those of commercial concerns because of their far-flung interests and large volume of traffic. This is a grossly exaggerated circumstance. It is true the government is an important shipper of freight, but it is far from being as important as some people would make it out to be.

During fiscal 1954 the army shipped 348,000 carloads of freight. This was during a period of great activity owing to the Korean situation. During the same period, General Motors Corp. shipped 615,000 carloads of freight, and an equal amount of tonnage over the highway.

One of the excuses frequently advanced is the large number of items which the government ships. Reference is made to 2.5 million items. This sounds impressive until one begins to ex-

amine what is meant by an item. In the huge catalog of 2.5 million items shipped by one of the departments, we find such things as 20,259 different sizes of nuts and bolts. Each of them is an item, bolts, each listed as an item.

Another objection is that carriers' associations are sometimes slow in handling rate adjustments. This is true, and it is a good thing rate proposals are given wide publicity and careful consideration by the numerous groups of carriers involved. Shippers have a right under laws recently enacted by Congress to know of proposed changes in rates which another shipper, including the United States Government as a shipper, desires to have.

The government's traffic business should be organized in a business-like way. Our company frequently has to go to the carriers to ask for adjustments in rates, and it takes us some time to get them. We stand it more or less patiently, and I don't know of any reason why the government, many departments of which are not nearly as large shippers as we, should be given special consideration. They should stand in line and take their turn and be treated like citizens.

Government Freight Bill

Still another objection is that repeal of Section 22 will increase cost of government. Also it is said elsewhere that traffic moving under special government Section 22 rates on the average pays higher rates than traffic moving on commercial rates. These statements are mutually exclusive.

If government rate proposals are publicized as are commercial shippers' proposals, often they may get better rates because experienced commercial shippers will assist in seeing that proper rates are approved.

If the commercial concerns of this country, many of which are larger traffic-wise than civilian agencies of the government, can live under these principles of fair and equal treatment, there is no sound reason why preference should be given to any part of the United States Government—except perhaps in time of war.

Section 22—Lasher . . .

(Continued from Page 73)

more important, than rates.

Transit arrangements for the military are made under the provisions of Section 22. Many of these arrangements already are established by tariff provisions. The reasons for establishing transit arrangements under Section 22, rather than utilizing tariff provisions, is a matter of simplification for both the military and the carriers, and a need for a nationwide uniform procedure.

Under such a uniform procedure, each transit operator handles transit in the same manner; each routing installation has a uniform approach to the problems of transit; each carrier and each inspection bureau thoroughly knows and understands the procedures to be used throughout the nation.

Tariff Packing

Another example is the waiver of tariff packing requirements under certain conditions. We had an infantry division to relocate. The division had a mass of unit constructed training aids for classroom instruction, physical training, etc. The rate level on the material involved was reasonable, but funds simply could not be obtained for the expensive packing and crating required under tariff provisions.

Agreements were reached with the carriers concerned to waive packing requirements. In turn, the military waived carrier liability.

These training aids arrived at destination in good condition. This waiver enabled the infantry division to retain its highly effective unit-constructed training aids.

Routing flexibility is another critically needed arrangement that is available to the military and the carriers under the provisions of Section 22. As an example, troop trains have moved expeditiously over portions of rail carrier lines where no passenger service or tariff arrangements for such service were available, and

the carrier did not hold himself out to provide such service.

Benefits of Section 22

Principal benefits and advantages to both the carriers and the Department of Defense in the utilization of the provisions of Section 22 are as follows:

1. Rates, rules and regulations may be established quickly and without advance notice. Thus, rates can be established timely to conform to actual movement.

2. Retroactive application may be authorized where justified. This privilege is beneficial to both the carriers and the military. A benefit to the military is that shipments may move immediately without delay, and a reasonable rate structure can be established during the actual movement or upon the conclusion of the movement on a retroactive basis. For the carrier, this privilege obviates the undue administrative and legal burden that would result in a governmental attempt to obtain reparations.

3. Cancellation of the quotation may be accomplished quickly when need for the quotation no longer exists. This arrangement obviates the retention of so-called paper rates in carriers' tariffs.

4. Security of the commodity, movement, and other conditions required in the movement of highly classified material can be best established through the media of these rate tenders.

Some of the hardships that would be encountered in the event the needed flexibilities under the provisions of Section 22 were not available to the military are:

1. Many shipments of military property which now move on a rate established through negotiations would, due to the urgency of the move, be transported at unreasonable high rates.

2. The military services being unable to secure adjustments, either prior to the movement of the traffic or retroactively, would attempt to secure adjustments through informal proceeding or litigation. Nothing would be accomplished in the final analysis except to increase the taxpayers' bill and everyone's cost of transporting for the military.

3. Of necessity, many adjustments of transportation charges on "spot" movements would be passed over because of the one-time movement, the inability to process an adjustment prior to initial shipment, and volume which would not justify litigation. The only alternative, and such alternative would be but a partial solution, would be for the military departments to increase their traffic staffs to shoulder this additional burden.

4. The various modes of transportation could not maintain their competitive position on government traffic. Large sporadic volume movements of freight are generated by the Army. Class rates are applicable on such traffic, or it could be that one mode of transportation has established commodity rates that would be applicable to the movement. The non-competitive mode of transportation certainly would desire to participate in the movement.

It is well to bear in mind that a substantial amount of military traffic is the most perishable of all traffic. This type of traffic may originate on extremely short notice, may move from points not covered by commodity rates, or no commodity rates are applicable to the exact military commodity. It may move against the established traffic pattern. In any event, the movement, while huge, usually is completed in a relatively short time.

(Resume Reading on Page 74)



Warehouse Census . . .

(Continued from Page 37)

storing goods for others. Revenue for the year aggregated \$125 million. Annual payroll amounted to \$50 million, or 40 per cent of sales. This industry provided employment for 13,237 employees on a payroll basis, and 190 active proprietors of unincorporated businesses, or a total personnel of 13,427.

Storage space of the 585 refrigerated warehouses included 297 million cu ft of refrigerated space; 62,367 frozen food lockers; 86,542 cu ft of bulk freezer storage space; and 10 million sq ft of dry space. These figures exclude public refrigerated space of establishments primarily engaged in such industries as ice plants, poultry dressing plants, milk plants, or meat packing plants.

Explanation of Terms

Following is a list of terms used throughout the census, and shown in the table (Page 37):

Establishments — Census of Business figures represent a summary of reports for individual establishments rather than companies. A separate report was obtained for each establishment, including each establishment operated by multi-unit organizations. In general, each location was counted as a separate establishment. However, where a company operated, as a unit, two or more buildings in a single city or metropolitan area and these buildings were all used for the same type of warehousing, the total operation was counted as one establishment.

Revenue — Represents total receipts from customers during 1954, after deductions of returns, allowances, and discounts. It includes receipts from storage, trucking, and other services performed by the warehouse; merchandise sales, including sales and excise taxes, and commissions from customers.

Payroll, Entire Year — Includes all forms of compensation (sal-

aries, wages, commissions, bonuses, and vacation allowances). For corporations, it includes amounts paid to officers and executives. It does not include compensation of proprietors or of partners of unincorporated businesses.

Paid Employees — Consists of the number of employees, including salaried officers and executives of corporations.

Active Proprietors of Unincorporated Businesses — Includes owners or partners who devote the major portion of their time to the operation of the business.

Occupiable Public Merchandise Warehouse Space — Warehouse net piling space which was assigned to the storage of commodities for the public. Space leased to others on a landlord-to-tenant basis, non-storage space or space consumed by exterior and interior walls, aisles, elevator shafts, stairways, offices, receiving and delivery rooms, platforms, or other obstructions, is not included.

Dry Storage Space — Square feet of under-roof warehouse floor space assigned to the storage of commodities which do not require refrigeration.

Refrigerated Space — Cubic feet of refrigerated (net piling) space 50 deg F or below assigned to public storage or commodities such as dairy products, fruits and vegetables, meats, and other perishable items.

Bulk Liquid Storage Space — Tank storage space in gallons (shell or water capacity) for handling bulk liquid products.

Grain Bin Space — Bin space, rated capacity in bushels, for storing loose grains, feed, etc.

Number of Frozen Food Lockers — Individual lockers installed having storage capacity of less than 25 cu ft each.

Frozen Food Locker Freezer Space — Cubic feet of freezer space in locker plants not being utilized for individual lockers.

General Merchandise Warehouses — This classification consists of establishments primarily engaged in the public warehousing and storage of a general line of goods in commerce. General merchandise warehouses frequently do some household-goods warehouse business, but warehouses which have primary receipts from the latter business are classified as Household Goods Warehouses.

Household Goods Warehouses — These warehouses are devoted primarily to the public storage of household goods, usually for the homeowner or user of the goods. Household goods warehouses performing local trucking service also are included in this classification. Many household goods warehouses also conduct some general merchandise warehouse business.

Refrigerated Warehouses — Establishments (except food lockers) which are primarily engaged in the public storage of perishable goods at artificially low temperatures. Refrigerated warehouses operated for private use are not included.

Food Locker Plants — Establishments with one or more paid employees primarily engaged in the renting of artificially cooled locker space for the storage of food products for individual households.

Farm Products Warehouses — Establishments primarily engaged in the public storage of grain, cotton, tobacco or other unmanufactured farm products.

Special Warehouses — Warehouses which are primarily engaged in the storage of special products, not elsewhere defined, such as automobile (dead storage only), furs (for the trade), textiles, works of art, office records, bulk petroleum products, bulk chemical products, whisky, goods in bond, goods in foreign trade.

Freight Trucking Terminals — Companies primarily engaged in the operation of freight trucking terminals, but not operating trucks. Facilities operated by trucking companies are omitted as they are considered part of the Trucking Industry.*

(Resume Reading on Page 38)

Tom Zacharias of Fireproof Storage Co., Lansing, Mich., recently was elected president of the Michigan Movers & Warehousemen's Association. Other officers elected were: Lewis Potter, Royal Oak, vice president; Bill Bradley, Detroit, secretary; and Vern Davis, Jr., Flint, treasurer.

—DA—

NARW Insurance Program

The NARW Executives' Plan, an accident and health insurance program for NARW member executives, partners, proprietors and other key employees at the executive and management level, became effective as of June 15.

A group insurance plan separate and distinct from the NARW Group Life Insurance Plan, the Executive Plan was approved by the Executive Committee after careful study.

—DA—

The Colorado Transfer & Warehousemen's Association recently announced the election of the following officers: James A. Duffy, president; L. D. Galvin, treasurer; C. D. Marlowe, chairman of the Board; James G. Murray, and Duffy and Galvin, directors.

New Headquarters



The Post Office Arcade annex, a famed Los Angeles landmark since it was erected in 1922, has been taken under longterm lease by Republic Van & Storage Co. Republic will renovate the building to house its national headquarters staff, which has been functioning in three Los Angeles locations. In addition to 150,000 sq ft of warehouse space at the new headquarters on Central Ave., Republic either owns or has under lease an additional 145,000 sq ft of space in Los Angeles.

Warehouse SPOTLIGHT

At the Annual Meeting of the Association of Cleveland Warehousemen, the following AWA men were elected to serve for the coming year: Frank L. Conaty, The Conaty Warehouse Co., acting secretary and treasurer; Frank H. Prusa, National Terminals Corp., and Ralph Hertel, The Cleveland Stevedore Co., as directors.

—DA—

Insurance Cost Cut On Government Storage

Efficient public refrigerated warehousing has effected a cut in the cost of storing government surplus commodities, Gilbert Stecker, president, the National Association of Refrigerated Warehouses, announced recently. The Surety Association of America has revealed an imminent reduction in the premium rate on the bond required by the Commodity Credit Corp. of warehouses storing its goods. Rates will be reduced from \$6 to \$5 per thousand, Stecker revealed.

—DA—

The Massachusetts Furniture & Piano Movers Association recently elected the following members to office: Daniel W. Dunn, Boston, president; Clifford Bain, Somerville, first vice president; Bennett Benson, Springfield, second vice president; Chester Lindstrom, Melrose, secretary; and Kermit Streng, Cambridge, treasurer.

AWA Appoints Committees

C. J. LaMothe, president of AWA's Merchandise Division, recently appointed the following members as chairmen of the group's Standing Committees for the current year: R. C. Schall, Banking Relations; Banfield Capron, Business Promotion; John K. Dozier, Employee Relations; Frank P. Ellis, Jr., Financial Management; F. D. Bateman, Government Relations; Morris M. Stern, Office Procedures; A. M. Lowmsbury, Plant and Operations; Bruce S. Howard, Port Terminals; Homer Strauser, Traffic, and Charles O. Butler, Uniform Commercial Code.

(Please Turn Page)

New Warehouse



The Warehouse Investment Co. has announced construction of this ultra-modern 112,000-sq ft warehouse to be operated by Haslett Warehouse Co. About 200,000 sq ft of property has been purchased at Dennison and King Streets, in Oakland, Calif., and it is planned that the building will be completed by October, representing a total investment of about \$1,000,000. The concrete building will contain both merchandise and refrigerated space and will be sprinklered.

Warehouse Spotlight . . .

(Continued from Preceding Page)

Warehouse Briefs

Atlantic Transfer and Storage Co. has been appointed the new Ft. Lauderdale, Fla., agent for Aero Mayflower Transit Co., Inc.

The Roederer Transfer & Storage Co., Davenport, Ia., has purchased the merchandise storage and local cartage division of General Movers, Inc., Davenport. The firm will occupy facilities at 320-23 E. 4th St.

A \$125 thousand parcel delivery terminal that will serve Dade, Broward and Palm Beach counties in Florida, now is under construction for Royal Fleet Service, Inc. Royal Fleet is affiliated with Colonial Transfer Co., Colonial Warehouse, Inc., and the Miami Terminal Transport Co., Inc.

Kriegsman Warehouses, Pekin, Ill., is completing a 1,036,800-cu ft addition to its facilities.

Westwarehouses, Inc., Stockton, Calif., has announced plans to occupy a 65,000-sq ft building at Reno, Nev. The company's 120,000-sq ft warehouse at Milpitas, Calif., now nearing completion, will be operated in conjunction with the new facility at Reno.

The Ottawa Movers and Transfermen's Association has reorganized under the chairmanship of J. R. Fournier, and will hold regular monthly meetings.

Hartford Despatch and Warehouse Co., Inc., Hartford, Conn., currently is celebrating its 50th anniversary.

Hartford Freezer Corp., Hartford, Conn., announces the opening of a new warehouse with one million cubic feet of refrigerated space, a four-car railroad siding and an 11-truck dock.

The Missouri Warehousemen's Association, Inc., will hold its Annual Meeting at Excelsior Spring, Oct. 12-14.

The Southeastern Warehousemen and Movers' Association will hold its regular Annual Convention, at the Balmoral Hotel, Miami Beach, Fla., Sept. 13-15.

Associated Warehouses, Inc., has announced the addition of Montreal Refrigerating & Storage, Ltd., as a new member. The Montreal warehouse has 600,000 sq ft of merchandise and refrigerated storage space.

Obituaries

Godfrey E. Santini—president of Santini Seven-Brothers, Inc., New York City, recently passed away. Surviving are his widow Dorothea, sons Godfrey F. and Quentin V., and daughter Mrs. Louis Knebel.

The following officers were elected at a recent meeting of The Missouri Valley Chapter of NARW: Roy L. Smith, chairman; John B. Frane, vice chairman; W. Irving Moss, Jr., treasurer. The new executive committee includes: W. L. Davis, Ed Barmann, Howard VanDyne and Dan Murphy. A. F. Versen was reappointed secretary.

—DA—

Elected to NHUC Board of Governors

Election of four new members to the Board of Governors of the National Highway Users Conference has been announced by Arthur C. Butler, NHUC director.

They are: Lewis G. Graeves, representing the American Bakers Assn.; William F. Hufstader, of the General Motors Distribution Staff; A. Leftwich Sinclair, Jr., District of Columbia director for the National Automobile Dealers Association; and C. J. Williams, president of American Trucking Associations, Inc.

Award of Merit



Shown at left above is Eugene Epping, director of public relations, Palo Alto Transfer and Storage Co., receiving the 1955 Award of Merit for best safety record in 100,000-250,000 miles class from Robert Minardi, chairman of Motor Transportation Committee, Santa Clara County Safety Council. The transfer company also received best safety record in 100,000 miles and under class, the inter-fleet safety contest for pickup and delivery, and for operating without an accident in pickup and delivery

Men in the Spotlight

Virgil Seward—named vice president in-charge of operations, Smith's Transfer & Storage Co., Inc., Washington, D. C. John Hott—appointed manager, Mayflower long-distance department. Girard Long—new general manager, traffic department, and Leonard Davis—named vice president, Smith's select furniture dept.



Joseph R. Mixer—named vice president in-charge of sales, Palo Alto Transfer and Storage Co., Palo Alto, Calif.

John C. Hilly—elected president, Bush Terminal Co., New York.

Edward L. Wyckoff—elected vice president, Seaboard Storage Co., New York.

Clifford E. Hicks—elected chairman of the Board, New York Dock Co., New York. Joseph A. Murphy—named president.

Chester C. Kennedy—named manager of new district office, Aero Mayflower Transit Co., Inc., Detroit, Mich.



Harold J. Blaine—vice president and general traffic manager of Lyon Van & Storage Co., Los Angeles, has been appointed to the Transportation and Communication Committee of the U. S. Chamber of Commerce.



Edward A. Peterson—appointed manager, Joyce Bros. Storage & Van Co.'s Wisconsin office.

Robert M. Hoey—appointed manager of rates and tariffs, North American Van Lines, Inc., Fort Wayne, Ind.

Fred Dent—recently joined the sales force of Joyce Bros. Storage & Van Co., Chicago, Ill.



Robert E. Mapes—North American Van Lines, new chairman of the Safety Committee, Movers Conference of America. Kenneth Nelson—Greyvan Lines, named vice chairman.

William Dalton—executive vice president of NARW, recently was elected to the presidency of the Washington Trade Association Executives for 1957.

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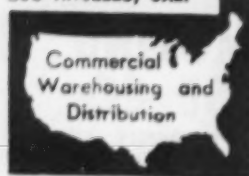
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Packing . . .

(Continued from Page 77)

5. Containers of minimum size, to better utilize warehouse areas.

6. Containers and inner pack to be received in knocked-down state, palletized for minimum storage requirements and ease of handling.

7. Speed and ease of assembly of both containers and inner pack.

8. Unobstructed packing and unpacking.

9. Closure of containers to be simple and fast.

10. Economy of operations and materials.

11. Inner pack to support and protect windshields during packing and unpacking operations, as well as in transit.

12. Use of standard materials readily available in volume.

13. Clearly mark all materials for easy identification.

14. Ability to pack consistently without error.

15. Containers susceptible to handling by all types of handling equipment.

With these points as a guide, we began our studies by making full size layouts of each windshield to show the curvature, shape and size; to establish clearances, spacing and best points of contact at which to pick up our loads and support each windshield individually.

Editor's Note: Mr. Koester's remarks were excerpted from a speech made at the American Management Association's 25th Anniversary National Packaging Conference, recently held in Atlantic City, N. J.

Standardized Container

With these layouts we were able to determine the number of lights to be packed in each container, and the size of the container. Then, by comparing our layouts, we found that several windshields had common points of contact and were of similar size and shape. This allowed us to standardize, by careful designing, both our containers and our inner pack.

But, before proceeding with the actual design of our pack, it was necessary to estimate our weights per case and make our carloading layouts; to provide the maximum number of sets per car to meet the minimum weights of 50,000 lb. This information, plus estimated schedules, was given to our Traffic

(Please Turn to Page 130)

and Firms are Arranged Alphabetically

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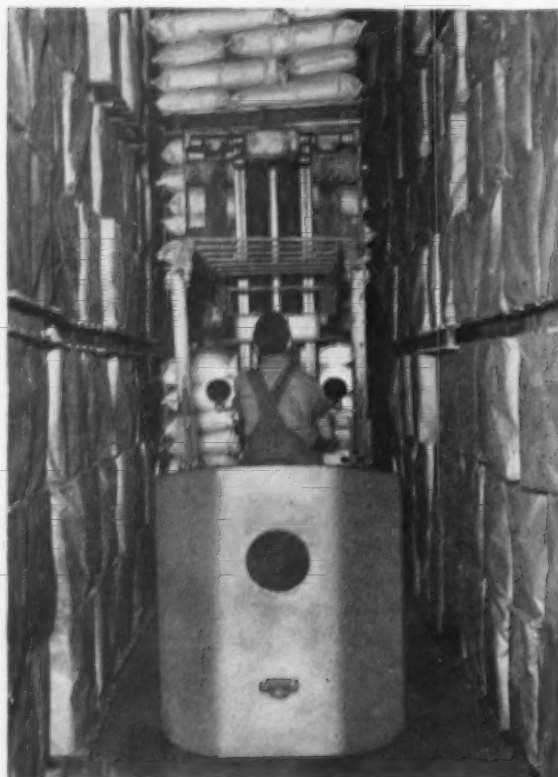
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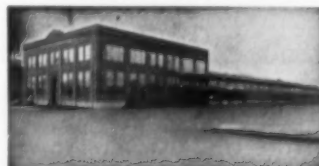
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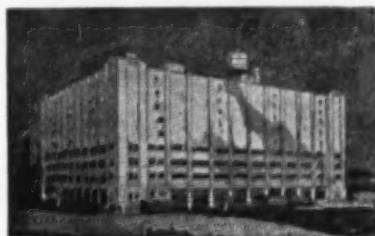
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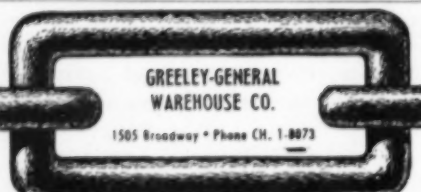
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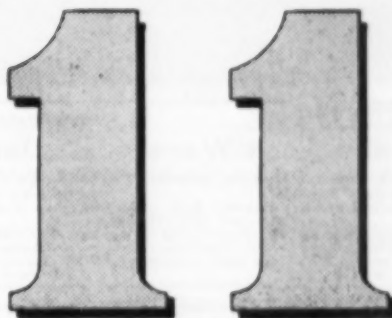
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Pool Car Distribution
Merchandise and
Household Goods Storage

and Firms are Arranged Alphabetically

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WAREHOUSING • DISTRIBUTION • TRUCKING

Represented by
DISTRIBUTION SERVICE, INC.
New York—Chicago—San Francisco

Packing . . .

(Continued from Page 104)

Department to procure equipped cars for our service. It also was necessary, at this point, to review our estimates of working areas, flows, storage and loading requirements; using actual case dimensions and number of pieces per case to formulate final area and storage layouts for production.

Inner Pack Design

In designing our inner pack, we projected our full size layouts to show the windshield in its actual position within the container, with the necessary clearances between the windshields and the inside faces of the container. Then, by locating our predetermined points of contact, we were able to design supports to carry the load and restrain the windshields from movement in transit.

Many types of material were tested before development of a

built up corrugated paper log, notched to provide accurate spacing and support. Then, by the use of triangular supports at the bottom ends of the case, we were able to hold and support the windshields in position individually during the packing and unpacking operations, as well as restrain them from movement in transit. By using the same spacer log at a common contact point on top of the windshields, we were able to space and hold the windshields top and bottom within the pack.

We reinforced this top log, to assure its staying in place, with a wooden channel-type brace nailed into position through the side of the box. This wooden channel and log also applied the downward pressure necessary to keep the windshields in proper position and maintain clearances in transit. After closing, we pulled the entire container into a very tight and structurally sound unit, by means of strategically placed steel strapping, with the glass fully protected from pressure or strain.

This flexibility and standardization of design made all parts of the container and inner pack interchangeable, reducing errors in packing to a minimum. We pack a case of 25 panoramic windshields in four minutes.

Performance Tests

To check our design physically, we prepared an improvised pack to exact inside dimensions, with supports in place, and checked our ability to pack and unpack one light at a time without damage. With this possible, we began a series of tests with sample packs to evaluate the performance under simulated transit conditions. After making vibration and combur impact tests, modifications and corrections were made. The tests were repeated with standard production packs with impacts up to 10 to 12 mph. We also made field trials via carload, less carload, truckload, and even express, before final acceptance of the pack for production.*

(Resume Reading on Page 78)

and Firms are Arranged Alphabetically

GREEN BAY, WIS.

ESTABLISHED 1903

LEICHT TRANSFER & STORAGE CO.

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Transit Storage
Household Goods Storage
Heated—Unheated—Yard
Storage
Waterfront Facilities
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60 Car Track Capacity
Modern Handling Equip-
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Private Siding on C&NW
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Reciprocal Switching all
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with 70 units of all types of equipment, including
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FRIENDLY CUSTOMER CONTACTS & GOOD PUBLIC RELATIONS!
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Ass'n

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WISCONSIN'S
LARGEST AND
MOST MODERN

AFFILIATE — HANSEN STORAGE OF MADISON INC.

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- Office Space
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